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Letters from Readers

OF INDUSTRIAL FINISHING

These letters (and many others) were answered recently by the editorial department, but are published here to reveal certain interesting trends of desire and activity in the industry, and to encourage additional inquiries, comments and suggestions. Further information about any of them can be obtained by writing this office.—Editor.

Air-Dry Wrinkle Red Finish

We have written a number of enamel makers who advertise in INDUSTRIAL FINISHING, but cannot find an air-dry red enamel that will give us a wrinkle or crackle finish. Can you advise us who to write to?—O. Novelty Co.

High-Luster Aluminum

In one of our production items we tumble small pieces of steel in aluminum paint. We understand you have an aluminum that will give a high luster. Please send us samples. Should this be satisfactory we will be in the market for same.—M. P.

Graining Paper

Please give us the name of the company referred to in your magazine, as having transfer-grain paper for wood grain reproduced on metal. —K. Casket Co.

Finishing Bent Wood Handles

We are using a formed rattan handle on our lanterns. These handles are cut from long lengths, softened in hot water and formed over a steel form; then put in an oven and allowed to dry on the forms. We then tumble them to remove all loose fibers and to smooth them up. They are then dipped in either clear varnish or black lacquer.

While we get a fairly satisfactory job, nevertheless it is a rather messy job, and the varnish or lacquer loss is quite great. Our thought is that you could supply us with the name of some manufacturer who could furnish us with a finish that could be tumbled. That is, we could put a certain number of these handles together in a tumbler, with a predetermined amount of varnish or black lacquer, and have them come out finished. Any information you may be able to give us will be deeply appreciated.—C. Lantern Co.

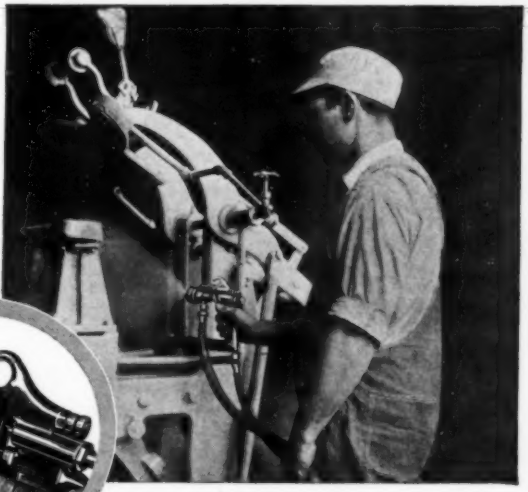
We question whether these bent handles can be tumble-finished satisfactorily, although it may be possible. Probably your dip-finishing methods or equipment can be changed more or less to make the work more satisfactory and less messy. We are submitting names of a few manufacturers of finishing materials designed for tumbling.—ED.

Long-fiber Sea Moss to Remove Filler

Can you advise us where we can obtain long-fiber sea moss? Or another practical substitute for removing filler?—W. H. Co. (The Best Store Equipment in the World).

We have been told by a local concern that this product is now practically off the market. Years ago the Oscar Smith & Sons Co., Clearfield & C Sts., Philadelphia, Pa., advertised in INDUSTRIAL FINISHING

YOU WIN 2 WAYS



THE BETTER WAY... THE PROFITABLE WAY... USE DeVILBISS PRODUCT-FINISHING EQUIPMENT

● Products that look better longer, sell easier, and stay sold. Finish them the DeVilbiss way to get better finishing results at a saving in cost.

DeVilbiss puts peak efficiency into your product finishing operations with an experienced hand. For years DeVilbiss engineers have developed more efficient and economical methods of spraying products of all sizes and shapes, all materials, for hundreds of different operating conditions. You'll find the proof in increasing thousands of satisfied DeVilbiss users who have profited.

Check your own product-finishing. Ask a DeVilbiss Spray Specialist to show you what DeVilbiss two-way performance will do for you. There's nothing to lose—it's all for your gain. Call the DeVilbiss man, today.

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CLEANS ANY FABRIC. Non-inflammable!! ODORLESS!!

The new, speedy thorough FABRI-CLEAN removes finger marks, spots, factory dust or dirt — renews fabrics — leaves no residue or ring.

Every upholstery shop or display room should carry a liberal stock of FABRI-CLEAN to insure clean, spotless, odorless fabrics. Also invaluable in cleaning drapes, rugs, etc.

No fire hazard — non-explosive — harmless to handle.

Sold in gallons only. Packed four to the case or singly. Specially priced at One Dollar per gallon.
Order today — NOW!!

Manufactured and Sold Exclusively by

V. J. DOLAN & COMPANY, INC.

"Unquestionable Quality" Industrial Finishes

1830 NORTH LARAMIE AVENUE CHICAGO, ILLINOIS

magazine a product which they called "Fillerub," designed especially for rubbing off excess filler.

We believe that many of the furniture manufacturers now use a long-fiber tow for this work. In looking up the directory for concerns in position to supply tow, we find several and are sending them to you in a letter.—ED.

Striping Tool

We are interested in obtaining a striping gadget. Please advise us the names of the manufacturers of same with rollers and without.—L. H. Co. (Golf; Skis; Table Tennis).

Luminous Paints

We have read in recent issues of INDUSTRIAL FINISHING, several inquiries on the manufacture of fluorescent and luminous paints and pigments and would like to receive the names of any manufacturers of these materials you have available. We note two inquiries in the March issue.—J. C. Co. (Cellusuede Products).

Flock; Putty; Termites

Have been a consistent reader of your valuable booklet and would like you to give me information on following items:

1) Where to get more information about flock, its application and best type of adhesive for wood and fiber.

2) Best types of wood putty to be covered with paint.

3) Termite-repelling liquid.

Will thank you for a reply.—B. B. Co. (Hawkeye Baskets).

Grain Reproduction

In the article, "Styles, Finishes, and Colors for 1940 Furniture," beginning on page 10 in February 1940 issue, you refer to a solidified lacquer film printed on the back with a pattern and sold in sheets for application to various materials including Masonite. What manufacturer may we contact for information on this new item?

On page 52, 1st column, you note the application of graining effect by air brush. Could you please advise us as to where we may obtain further information on this process?—U. Mfg. Co. (Furniture Novelties).

Information supplied.—ED.

Scrap Film

Will you please send us the names and addresses of firms selling scrap film, if you have such information available?—R. Lacquer Co.

The Cinelin Co., of Indianapolis, Ind., is one source of supply.—ED.

Painters' Free Supplies

We are interested in purchasing wooden paint paddles, painters' caps, yardsticks and paint strainers for advertising purposes. If you can suggest possible sources of supply, it will be very much appreciated.—Paint Supply Co.

Names of a few firms have been submitted to this inquirer.—ED.

Spray Equipment

Kindly advise me what firms manufacture paint-spraying equipment, and refer my name to them for their sending me descriptive literature with prices and data.—L. F. C., San Juan, P. R.

Look over INDUSTRIAL FINISHING'S advertising pages for information like this. The companies we recommend are listed there.—ED.

Multiple Striping

In your April issue, on page 4, you mention multiple striping. We would appreciate it if you could give us the name of the manufacturer of these tools which produce multiple bands and stripes in one operation. —M. Co.

Information given.—ED.

Padding Machine, Again

In your April issue, page 7, in the "Letters from Readers" section, you publish an inquiry for a padding machine to apply lacquer. We, too, are interested in just this type of apparatus. If you do receive information, we would appreciate your giving us the name of the manufacturer.—M. M. Co.

Have no information yet.—ED.

Stains Wanted

On page 27 of the March issue of INDUSTRIAL FINISHING, you have an

LEND THE

BEAUTY OF SPRING

to your product with a finish coat of

RAYON FLOCKS

in pastel shades selected from our standard color card—then watch your sales and profits rise.

The cost of flocking is small — the enhancement of value of your product is large.

Applicable to all sorts of objects in glass, wood, paper, fabric, metal, etc.

Write for color card and samples—free

NOW!

CLAREMONT WASTE MFG. CO.

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The country's leading makers

SPRUANCE

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Wood Finishing Materials

STAINS
FILLERS
SEALERS
LACQUERS
VARNISHES

Spruance materials have long been standard on fine radio cabinets, case-goods, novelty furniture, etc. Working samples will prove convincing. Write TODAY.

THE GILBERT SPRUANCE CO.

RICHMOND & TIOGA STS.
PHILADELPHIA, PA.

SPRUANCE QUALITY

Specialists in the manufacture of wood and metal finishing products since 1907.

article entitled "Mixing Stains to Match," by Ferd Rosen. In this article Mr. Rosen mentions certain U. P. S. primary stains and a certain special type of alcohol for mixing them.

We would appreciate it very much if you would advise us where this material can be obtained, or ask Mr. Rosen to get in touch with us with regard to these stains which we understand his firm is able to supply. —O. R. Co. (Pipe Organs).

Flexible Finish for Bamboo Curtains

We would like to get a paint or lacquer that could be used on bamboo porch curtains. This paint must be flexible, as the bamboo bends slightly when blown by the breeze. Also it must be made so that it won't chip off too easily. The backs of these curtains are split bamboo and the face sides are the green bark. .It is the smooth hard face side or the green bark that we are having trouble with, getting a paint or lacquer to stick to.—V. S. Co.

Stripping Compound

Will you please supply us with the names of the manufacturers of stripping compounds which will remove lacquer or shellac or both? The compound should not be harmful to glass.—D. K. Co. (The House of Mirrors).

Information supplied.—ED.

Pearl-Like Enamel

I am interested in securing a decorative enamel finish for an improved pencil holder to be made of brass shell or tubing, which I plan to manufacture. A satin or pearl-like enamel finish that comes in many fine tints appeals to me and I thought possibly you could give me the name of the manufacturer. For this purpose I am sending you a piece of sheet brass with this kind of finish.

I would also like to receive more information about Float Pearl (Dipping) code No. 183, as per January 1940 issue of INDUSTRIAL FINISHING. —K. P. J.

To Bleach Stained Furniture

It sometimes happens that the stock of some of our patterns in

furniture is running very low and all the pieces have been finished in either standard walnut or mahogany stain. Along comes an order for one of these suites in some light finish, such as French walnut or bleached wood. Now what we require is something that will not only bleach the wood, but rather something that will remove all traces of the old stain, thus providing a new clean surface similar to the original unfinished white wood. Any information you can give us in this connection will be appreciated.—A. Z. Furn. Co.

Will you please submit the names of manufacturers of bleaching materials, and instructions as to their use? Our problem is to eliminate the water stain from the grain of the wood after the varnish is removed, and to prevent it from reappearing after we have gotten down to the bare wood. The final finish is to be natural birch. Is it possible to accomplish this result?—W. Co. (Store & Office Fixtures).

We believe you can remove stain colors from stained furniture with bleaching compounds offered by advertisers in this publication. However, in some cases, you may be obliged to resort to repeated applications of bleaching material, each application being followed by drying and sanding.—ED.

Where's "Velvelox"

We have a request in our Buyers' Service Department for "Velvelox" varnish finish. Do you know who manufactures "Velvelox" varnish finish?—R. D. Co.

We are not familiar with this product and we do not find it listed in the 1938 Trade Mark Directory issued by the Trade Mark Bureau of the National Paint, Varnish & Lacquer Association, Inc.—ED.

To Apply Metal Leaf

Could you tell me how I could get some information on applying metal leaf to furniture or lacquer surfaces? —H. W. C.

We are sending you tear sheets of a few articles that have been published in INDUSTRIAL FINISHING about laying gold leaf.—ED.

Flo-Bak SYNTHETIC BAKING ENAMELS

A HIGH SPEED BAKING LINE OF FINISHES IN CLEAR AND COLORS

Clear Flo-Bak Y536

A clear synthetic finish, absolutely water white. Specifically formulated for adhesion to copper and brass. Ideally suited for hardware specialties and other items requiring a clear protective finish.

1. **Tough finish.**
2. **High lustre.**
3. **Easy flowing.**
4. **Excellent retention of gloss.**
5. **Highly resistant to acid, alkali and alcohol.**

Baking schedules are adjustable to most finishing procedures:
300° F. for 10 minutes
275° F. for 20 minutes

Further information and samples will be furnished on request.

LACQUERS THINNERS ENAMELS METALIZED FINISHES SYNTHETICS

UNITED LACQUER MFG. CORP.

General Offices and Factory: Linden, New Jersey

FORM-A-ROC

We offer to all industries equipped for baking finishes this highly perfected, heat-converting, synthetic enamel.

FORM-A-ROC

We have combined to an optimum degree the necessary qualities of tremendous hardness, great adhesion, smooth lustrous gloss, and freedom from haze, discoloration and wrinkling.

FORM-A-ROC

Baking schedule is of great flexibility, permitting from 5-50 minutes at 250-375° F.

FORM-A-ROC

No matter which of the present worthy finishes of this type you may be using or planning to use we sincerely recommend that you investigate

FORM-A-ROC

MADE BY

THE VARNISH PRODUCTS CO.

5208 Harvard Avenue

CLEVELAND, O.

Marbelizing by Spray

An article on page 52 of February 1940 issue of INDUSTRIAL FINISHING pertains to the application by air-brush of such effects as marbelizing, onyx and similar finishes. The article further states that the process is particularly useful where such finishes are to be applied on uneven and odd-shaped surfaces. We would like to have whatever information is available on this finishing method. —E. Casket Co.

To Test Viscosity

We would like to find some simple practical device that can be used for testing the viscosity of finishing materials such as varnish, lacquers, etc. Can you direct us to a firm who have equipment of this kind to offer?—K. B. Co. (Complete Dining Room Suites).

Would you please give us the name of a supplier or the manufacturer of the Zahn cup for viscosity reading, which is mentioned in the article on pages 18 and 19 of the April 1939 issue of INDUSTRIAL FINISHING?—D. S. Co. ("No Better Built Than Durabilt").

Information supplied.—ED.

About Synthetics

I request your explanation in the following: I am a chemist, experienced in lacquers for coating fabrics, papers, leathers and metals, but my work has been with lacquers, not synthetics. Now I find that almost every employer demands experience in synthetics. Could you please advise me what synthetics, by specific name, have proved usable in coating fabric, paper and leather? Also, the names of producers of synthetics; whether synthetics can be compounded into coatings drying at 150° to 200°F., and their compatibility with cellulose base, plasticisers, solvents? Do you know of some book or pamphlet giving practical information about formulation of synthetics drying at 150° to 200°F.?—K. M.

We are sending you tear sheets from past issues of INDUSTRIAL FINISHING which contained articles about synthetics. In addition to this, we suggest you purchase a copy of Dr. Wm. Krumbhaar's newest book entitled "The Chemistry of Synthetic Surface Coatings", published

(Continued on page 70)

is a state of perfect accord and harmony in a finish means **perfection.** It means perfect tone and harmonious blending plus durability and true economy. It means Stille-Young finishes throughout.

Lacquers
Stains
Fillers
Sealers
Enamels

Send us your inquiry, and we will help you to keep your finishes in tune.

Use Stille-Young Finishes with Confidence!

THE STILLE-YOUNG CORPORATION

Manufacturers

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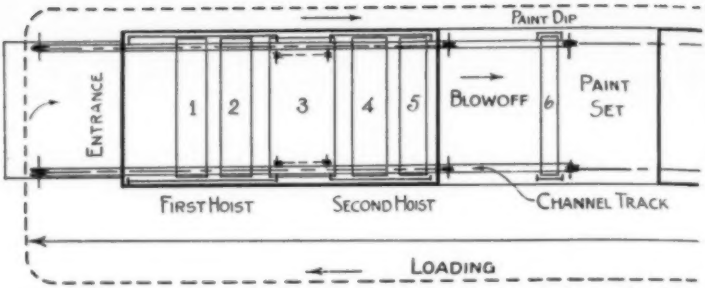


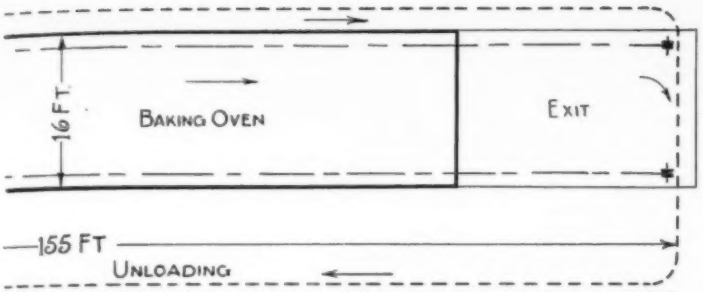
Fig. 1—Plan view of the metal-cleaning, bonderizing, paint dipping, and paint baking units, all of which perform automatically in mechanical coordination with a conveyor system. Tanks are as follows: 1) Hot alkali wash; 2) hot water rinse; 3) bonderizing; 4) hot water rinse; 5) hot chromic acid rinse; 6) paint dipping.

Conveyorized Finishing of

COORDINATION mechanically of the processes of metal cleaning, bonderizing, painting and baking are singularly exemplified in the modern equipment installed in the plant of a large manufacturer of welded steel structural frames. In this arrangement the parts, embodying a great variety of sizes and shapes, are suspended by hooks attached to load bars and carried through the washing, rinsing, bonderizing, cold rinsing, chromic rinsing, paint dipping and baking operations on a series of conveyors mechanically interlocked so as to make the set-up completely automatic.

The layout is designed to provide a flexible system whereby the products may be put through any desired combination of cleaning and painting operations, so as

Fig. 2—Photograph of complete installation shown in Fig. 1; entrance is at the left.



The 13-ft. load bars, from which the steel frames being processed are suspended, move crosswise through all operations from entrance to exit. Automatic hoists lower the products into and withdraw them from tanks 1, 2, 3, 4, 5 and 6. At the exit the load bars are automatically transferred to the monorail conveyor.

Structural Steel Frames

BY C. D. PAQUETTE
Chief Engineer, International Conveyor & Washer Corp.

to make possible the following combination of processes:

A) Parts to be washed in alkali tank, rinsed, bonderized, hot-water rinsed, chromic-acid rinsed and painted; or—

B) Alkali-washed, rinsed and bonderized; or—

C) Alkali-washed, rinsed and painted; or—

D) Alkali-washed and rinsed; or just—

E) Painted only.

Referring to Fig 1, you see a plan view of the entire installation. In the picture marked Fig. 2, you see an end and side view of the system, where steel frames suspended from load bars are about to enter the alkali wash which is the first unit of the system. In the middle foreground of Fig. 2, you are looking at a turn in the overhead monorail conveyor which is returning the load bars in lengthwise position from the discharge end of the oven at the far end of the equipment. These suspended load bars have been unloaded shortly after leaving the oven and again reloaded with unpainted frames before arriving at the right-angle turn show in Fig. 2. The load bars are spaced 16-ft. apart on center as they travel lengthwise under the overhead monorail conveyor.

Each load bar consists of a 2½-in. pipe 13-ft. long, with double wheel rollers mounted at each end, so as to permit it to ride on channel rails when traveling crosswise through the enclosed automatic operations. Beneath the 2½-in. pipe and attached to it is a parallel flat bar that has V-notches like saw teeth along its top edge. These notches

Fig. 3—Products suspended high above the alkali wash and hot water rinse tanks.

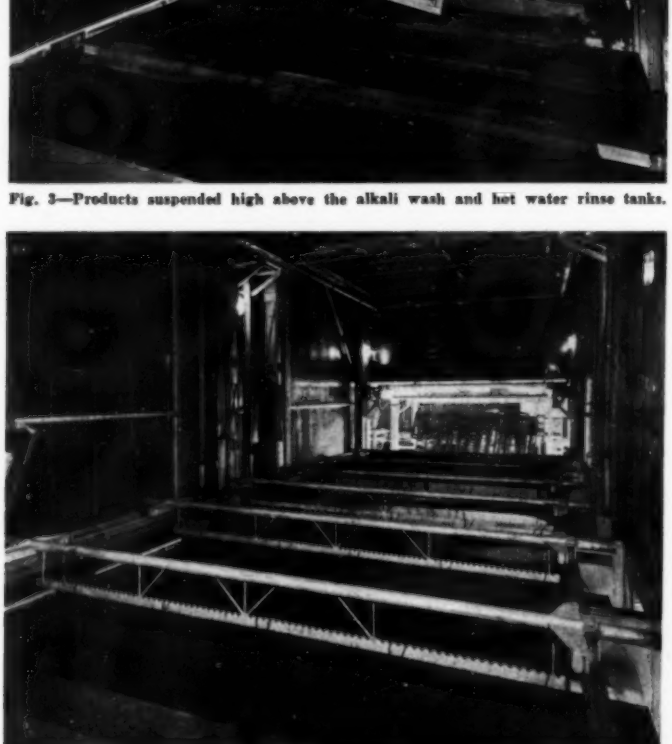


Fig. 4—Same view as above, but with products lowered for immersion into tanks.

receive the iron hooks that hold the products being processed; the notches prevent the hooks from sliding along the bar.

Metal Cleaning; Bonderizing; Chromic Acid Dip; Paint Dip

As the loaded bars move forward under the monorail conveyor to the point of entry shown at the left in Fig. 2, they are automatically transferred to a track over which they travel crosswise through the series of operations marked *1*, *2*, *3*, *4*, *5* and *6*, in Fig. 1. On this track the loaded bars are propelled by a pusher conveyor which travels in 5-ft cycles. This conveyor first moves the work to and over the alkali and hot rinse tanks where a lowering and hoisting mechanism automatically immerses the products into the tanks.

The lowering and hoisting mechanism is controlled by a time switch which is set to leave the parts in the cleaning tank for one minute. Referring to the occompanying illustrations, the one marked Fig 3 shows the section over these tanks with the hoisting mechanism raised. The one identified as Fig. 4, and taken from the same position, shows the hoisting mechanism lowered to submerge the parts being treated.

When the products reach the bonderite tank (3 in Fig. 1) and are lowered into it, the load bar is carried across the tank on a conveyor which gives a timing of four minutes in the bonderite solution. From the bonderite tank, parts and load bar are picked up by a second hoisting device, and the process is repeated through the hot water rinse and chromic acid tanks. Provision is made for control of temperature in tanks.

From the chromic acid tank, the load bars carrying the products travel on a track to the paint dipping station. The travel on this track is accomplished by one load bar pushing the other, and this provides a cooling time of approximately 30 minutes before they are dipped into the paint tank. This dipping operation is also performed by a lowering and hoisting device. From this point the loaded bars are transferred to the oven conveyor which is partly shown in Fig. 5.

Controlled Automatic Operation

Travel through the oven is at the rate of 12-in. per minute. As the products emerge from the oven (see Fig. 6) they are transferred from this conveyor to a track which will hold approximately 20 racks and provide a cooling period of 20 minutes before the load bars are transferred to the monorail conveyor to start another cycle through the system.

All equipment is electrically controlled and synchronized and all transferring is done automatically. Control of the washing, bonderizing, or painting is accomplished by merely pushing a button to shut off the motor which operates the equipment through these various processes. Particular attention has been given to the electrical equipment. All transferring is controlled by limit switches.

On the oven conveyor, which is protected by a sheer flange, a rotating safety-limit switch is provided at the headshaft. If the oven conveyor happens to shear a pin, the entire system will stop until the pin is replaced; or, in case of power failure in the plant, the operator will press energizing

switch buttons on the control panel to start the entire system. All possibilities of the system getting out of synchronization have been eliminated by the electrical control switches.

A sheet metal canopy, with side walls and exhaust stacks extending through the roof, is provided for the removal of steam and fumes over the dip tanks.

Following is a more complete description of the various units of this system:

The hot alkali spray and hot water spray tanks are each 3-ft. 8-in. in length by 14-ft. in width by 12-ft. in depth. Each tank is constructed of ¼-in. steel plate and reinforced with channels and angles. Cleaning is accomplished by means of a system of spray piping to which the solution is furnished by a 400-g.p.m. pump. Heating of the solution is accomplished by means of steam coils.

Bonderizing; Chromic Acid Dip

The bonderite tank is 6-ft. in length by 14-ft. in width by 10-ft. in depth, and is constructed of ¼-in. steel plate, reinforced with channels and angles and lined with No. 16 gauge stainless steel lining to prevent excessive corrosion. The immersion system of bonderite application is used and the solution is heated by steam coils made of 2-in. pipe, the steam coils being removable for cleaning.

The horizontal conveyor operated in conjunction with this tank, consists of two matched strands of chain, powered through a reducer arrangement by a 1-hp. 1200-r.p.m. motor with disc brake.

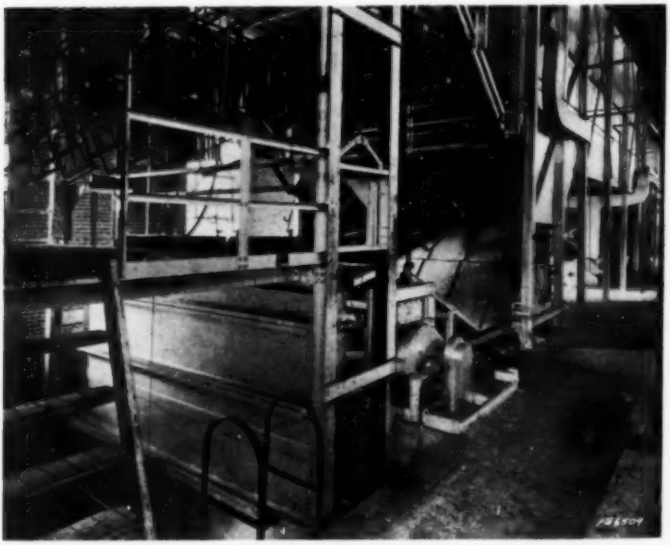


Fig. 5—Looking at the paint-dipping unit and entrance to the paint-baking oven.

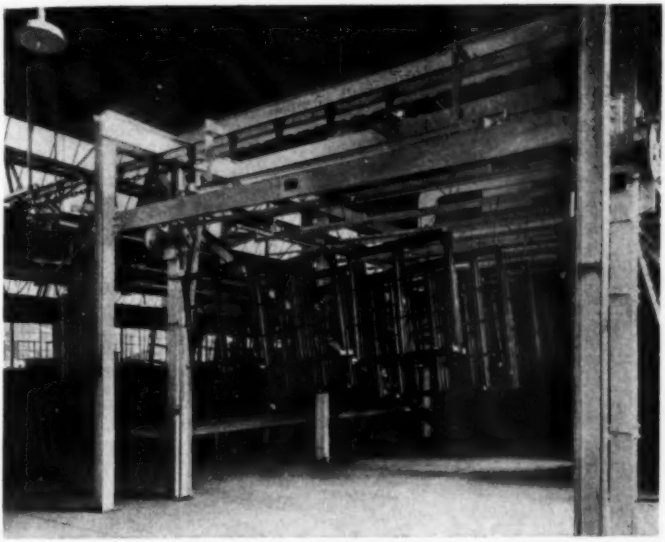


Fig. 6—View at exit end of oven where cooling takes places, followed by automatic transfer of load bars from crosswise conveyor to the overhead monorail conveyor.

Hot water rinse and hot chromic acid tanks are similar in size and shape to the alkali wash and rinse tanks, with the exception that spray piping and pumps are omitted.

Dipping Mechanism; Pusher-Type Conveyor

The hoisting and lowering frames over the tanks consist of structural frame-work operating in guides and attached to roller chains which operate over sprockets to a hoisting drum. Cages are counterweighted for balancing the load. The drums are operated through a reducer directly connected to a 3-hp., 1200-r.p.m. motor, with disc brake.

The pusher type conveyor over the dip tanks consists of two strands of chain with pusher dogs at 5-ft. centers, so as to propel the load bars along the double channel track.

The drive unit of this conveyor consists of a reducer directly connected to a 1½-hp. 1800-r.p.m. motor with disc brake. The operation of this conveyor is timed so as to move the load bars from one tank to the next in the proper time cycle.

The entire control of the electrical equipment for this pusher conveyor and the hoisting and lowering cages, is actuated by the monorail conveyor which brings the load bars to the entrance of the system.

The paint dip tank is 2½-ft. long by 14-ft. wide and 10-ft. deep, fabricated from ¼-in. steel plate and heavily reinforced.

The dipping device for the paint tank consists of vertical structural framing with a steel cage traveling in guides. Cables on the cage operate over steel drums mounted on shafting and driven by a reducer directly connected to a 3-hp. 1800-r.p.m. motor with disc brake.

Conveyor Oven

The conveyor for the paint-drying oven consists of two equally matched strands of chain with special outboard rollers. This chain operates over steel tracks and guides through the oven and returning, and is driven through a reducer by a 1-hp. 1800-r.p.m. motor. Magnetic switch and push-button controls are provided for the motor.

The conveyor for carrying the load bars from the exit end of the system to the starting point, consists of a 4-in. I-beam monorail, with dropforged chain and trolleys spaced on 2-ft. centers. Special hooks are provided for carrying the load bars for the work on 16-ft. centers. The conveyor is powered by a 3-hp. 1800-r.p.m. motor with magnetic switch.

The paint-drying oven is of the A-type and constructed of 20-gauge sheet metal panels with 3-in. rock wool insulation. The oven is direct gas-fired and is supplied with complete automatic and safety controls.

From a production standpoint, the system described above is built to handle 20 load bars per hour, each bar carrying approximately 600-lbs. of work.

From the foregoing description and illustrations it can readily be seen that this system involves a considerable variety of movements from a conveyor standpoint. The coordination of these movements and their unification in a complete system represents a real forward advance in a finishing set-up for this type of work.

Flock, applied with a spray gun, produces a velour or suede-like finish. Startlingly unusual and beautiful effects can be achieved with it by sign and display artists, window trimmers, fashion designers and other creative artists. Flock is also used extensively in the manufacture of greeting cards, novelties, shoes, purses, gloves, lamp shades and innumerable other items where its use leads to more unusual designs, lower costs and better production. It is sprayed on after a coat of sizing material has been applied to the surface by means of any regular paint spray gun, the flock being sprayed on immediately thereafter (with a regular flock gun) while the sizing is still sticky.—E. S. Co.

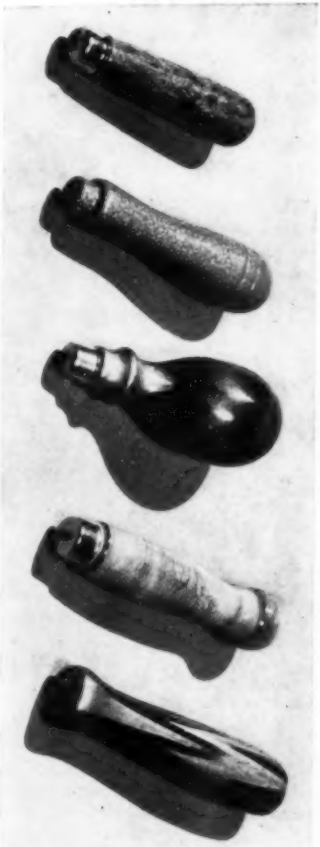
New Color Oxide Book

The Chicago Vitreous Enamel Product Co., Cicero, Ill., recently issued a 24-page book on color oxides for the porcelain enameling industry. It presents basic information on what color oxides are, how they are made, and how best to handle and apply them; carries 115 color chips, grouped as to classification, color combinations and color comparisons; tells how to blend basic oxides to gain the exact shade desired for any porcelain enameled product.

The publishers have avoided the technical aspects of color and color-matching by describing procedures in simple language. They have eliminated, very largely, laboratory formula numbers and adopted simple, descriptive names for varying shades. They have separated "basic" oxides from the "miscellaneous," and in the manner of presentation, have doubtless contributed materially to the simplification of color applications and matchings.

Mottle Finish by Dipping

BY THOS. F. RICHARDSON



Since publication of this illustration in Oct. 1939 issue, some readers have asked how the mottled effects are produced. The author gives his method in this article.

AN IRREGULARLY mottled color finish presents an attractive appearance on turned wood handles, but the application of this effect requires some practice on the part of the finisher. Any desired combination of colors, metallic included, can be used to match various brushes, kitchen accessories, etc.

In preparation for the mottling operation, a white undercoat lacquer and a coat of basic colored lacquer are applied. The former is applied with a dipping machine and the latter is hand dipped. (See my article entitled "Dip Finishing Handles" in October 1939 issue of INDUSTRIAL FINISHING, for detailed information about dipping).

The materials used in the mottling process include a tank of clear lacquer and a tank of the colored lacquer which is intended to go with the basic color of the handles. Both the clear and colored lacquers are thinned 50/50 with lacquer thinner. Metallic lacquers will have to be mixed in the lacquer room.

Suppose you plan to mottle silver (aluminum) lacquer over a blue basic color. The silver aluminum will be prepared by mixing together 10-lbs. of aluminum paste, five gallons of clear lacquer and five gallons of lacquer thinner —or a smaller quantity in this same proportion. In mixing the

aluminum paste, or any paste or powder, the paste should be mixed with lacquer thinner before the clear lacquer is added. Since it is necessary to change the viscosity of the lacquer occasionally, enough aluminum will already be in the tank to meet the change automatically.

In addition to the aluminum lacquer, a tank of clear lacquer is also required for this mottling operation—the way we do it. The two dip tanks containing the two mottling lacquers, aluminum and clear, are placed side by side on a bench or stand near the operator—the aluminum being nearest the operator, while the clear is right back of it. This arrangement enables the operator to dip handles in both tanks without moving from his position, any lacquer that drips off will be caught in the tanks. The aluminum lacquer must be stirred thoroughly and frequently during operations to keep the material well mixed.

The handles are stuck on pin boards in multiples, for hand dipping, as described in my article in October 1939 issue. These handles to be given the mottled finish in silver and blue have already received an all-over solid blue coating by previous dipping.

Technique of Mottling

First the operator dips the handles into the clear mottling lacquer. Then he lifts them from the tank and holds them above it to allow the excess material to run back into the tank. This draining takes from about four to six seconds. When most of the clear lacquer has run off, the handles are immediately dipped into the aluminum lacquer. This time the handles are not immediately withdrawn from the tank. They are jerked up quickly, but only part way—only as much as ½-in. or so. Then they are held perfectly still for about two seconds or until the aluminum lacquer breaks away at the surface of the tank. After the aluminum film has broken away, the handles are raised slowly upwards, leaving a band of blue with no aluminum in it. When or if another aluminum band is wanted on the handles, they are again jerked up quickly, held still for a few seconds and then raised up slowly in the same manner as when the band at the top was formed.

Usually, two bands, of aluminum, one near the top and one near the center, are enough on handles up to 6-in. in length. However, several of these bands can be made on each turning if so desired; or several different colors can be put on the same handles.

Lacquer "Set Up" and Drying

After the dipped handles have been removed from the tank of aluminum lacquer, they are placed in racks to allow the lacquer to "run" and "set up", at which time it forms itself into various attractive mottled effects. The handles are hung in the same position as that in which they were dipped. Each rack (in which the handles are hung after being dipped) holds about 15 loaded pinboards. By the time one rack is filled, the handles which were dipped first are ready to be removed and placed in drying racks. This time the handles are inverted and set upright to dry, as the lacquer is through "running".

A top-coat of clear lacquer is applied by machine dipping, after the mottled handles have dried for an hour or more.

One man can mottle about 5000 medium sized handles in an hour, once he has become familiar with the process—and provided he has the necessary equipment arranged conveniently for fast work.

Experience and Skill Required

Timing is important in mottling. Each pinboard of handles must be dipped, drained and raised out of the colored mottling lacquer in exactly the same period of time to obtain a uniform design on all of the handles. With a little experience, anyone will be able to time the various operations automatically, without even thinking about it; but at first everything and every move must be kept in mind—just as one does in learning anything else.

Different shapes of handles cause the colored mottling lacquer to form different effects. Hexagon and octagon shapes, owing to their sharp corners, cause the lacquer to "run" to a sharp point in the panels. On round handles the effect is rather irregular, but nevertheless attractive.

If several colors are applied to the same handles, each color must be dried before another is put on.

On some days the lacquers seem to "run" different than on others. In cases where the aluminum or other mottling color "runs" too much, the clear lacquer is too heavy and should be thinned until the correct design is produced. Sometimes the colored lacquer will not run enough; then the clear is not as heavy as it should be. If the aluminum or colored lacquer tends to catch again after it has been broken, the clear lacquer should be thickened until it works correctly.

The aluminum lacquer will mottle-coat thousands of handles before anything need be added; occasionally the tank will become too full because of many small additions of clear lacquer which comes off the handles. This is especially likely to occur if the clear lacquer is allowed to become too heavy.

Wet Sanding

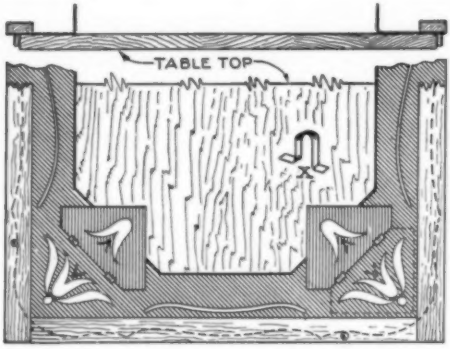
WET SANDING, in connection with wood finishing, is greatly facilitated if a handful of Ivory soap flakes is dissolved in a 4-gallon pail of hot water and the mixture used as the lubricant for the abrasive, instead of plain water. The wiping-up operation removes any traces of the thin soap solution, so that no interference with succeeding coats is experienced.—M. T. Penn.

Body Paint Booklet Free

A new sales aid of interest to automobile dealers and painters is a booklet recently issued by the Finishes Division of the Du Pont Co.

Known as "Surface Gold," it is based on a film by the same name and is in the form of a script with illustrated action "shots" from the film. Brief and easy to read, it portrays in conversational style the experiences of a typical establishment that searches for and finds a means of bringing extra profits to the paint shop through effective selling methods.

A copy of the "Surface Gold" booklet may be obtained by writing to E. I. du Pont de Nemours & Co., Room 7156, Du Pont Bldg., Wilmington, Dela.



Cross-sectional elevation and part of plan view of wood-framed sheet-metal stencil (with middle cut out, inside edges turned up and corner stencilettes added) in position over dinette table top. Insert X shows U-shaped tie to span across long slots in stencil.

The Open-Stencil Method

BY NORMAN H. VOIGT

COLOR decorations such as floral designs, scrolls, coats of arms, insignias, monograms and stripes can be applied to the flat surfaces of furniture by spraying through the open cut-outs of sheet-metal stencils. This economical production method is capable of many variations, making possible multi-colored effects with natural gradations or blendings of color. To produce these decorative effects, some ingenuity and skill are required—first, to properly design and make the stencil; and second, to use it effectively.

After some experimenting in the decoration of dinette table tops, I discovered that full-size stencil plates for the complete top, including two extra leaves, are not only easy to make but quite practical from the standpoint of efficient production. I use sheets of medium-weight zinc (about 1-32-in. thick) flattened and cut a little larger than the size of the table top. It is desirable to allow at least a 1-in. projection all around.

The floral design and stripes (or whatever design is specified) are traced onto the sheet of zinc through a perforated paper drawing. To prepare for the stencil cutting, this zinc sheet is clamped onto a work table that has a level wood top, making sure that the edges of the zinc sheet are parallel to the edges of the work table. A small portable electric router is used to cut the stencil free hand—or with suitable guide strips. The router is fitted with a 3-32-in. channeled high-speed steel bit which is set just deep enough to cut through the metal and remove the wire edges. A

"The article by T. J. Pirrung, 'Suggested Methods for Decorating Furniture,' in March issue of Industrial Finishing contained much of interest to me. I have had considerable experience with all types of decorating and wish to give readers a detailed account of my experience with the open-stencil method of decorating furniture.

"With the method and equipment here described, a good spray man can decorate a complete table top in two minutes, using three colors."—

Norman H. Voigt

# of Decorating Furniture

skillful workman can cut intricate patterns clean and accurately with this high-speed tool.

Designing and Making Stencil

The table-top stencil illustrated in the accompanying drawing is 60-in. long and 30-in. wide. Here is the way we make it: After the floral design and stripes are cut out with the small router the middle of the zinc sheet is cut out and removed to be used for smaller size stencils. The inside corners are mitered and folded up at right angles to a height of 2-in., to provide a "spray fence" for protection against overspray and also to make the stencil more rigid.

Where one or more long slots are cut for stripes, thereby weakening the rigidity of the metal sheet, so it is liable to buckle or become distorted, these places are strengthened and held in line by crossing the slots with inverted U-braces or "ties." The reason for using a U-shaped tie is to allow plenty of clear space under it for spraying through the slot to make the continuous stripe. I generally use braces made of flat strips of copper (thick enough and stiff enough to be rigid) and solder the feet of each brace to the zinc sheet, as shown at X in the drawing. These U-braces are generally spaced 12 to 14-in. apart along the length of long slots in the zinc stencil.

The outer edges of the sheet zinc stencil are positioned flush with the outside edges of a wood frame and the sheet zinc is nailed to the flat side of the frame. This wood frame can be nailed on top of the sheet zinc stencil, as shown in the accompanying drawing, or it can be nailed to the underside. If it is placed on top of the stencil it can be smaller in

outside dimensions because it will set in far enough to rest partly on the outer edge of the table top being decorated; but if it is placed on the underside of the metal its inside edges must overhang the edge of the table top, which isn't always desirable.

This wood frame for the stencil must be carefully made of soft straight-grained wood that is perfectly flat—and when not in service it should be stored in such a way that it will remain flat. At about three points near two adjacent edges, this frame is drilled to receive dowel pins which will project from the bottom and serve as guides for correctly positioning the stencil over the table top to be decorated.

To prevent lacquer spray from adhering to the zinc, we apply a thin film of grease uniformly over areas to be heavily sprayed.

Spraying Three Colors

Referring again to the drawing, our decorative color scheme on this particular job includes the following: The complete floral cut-out at each corner is sprayed first with ivory colored lacquer enamel. Then, without moving anything, and while the ivory color is still wet, the operator carefully sprays the flower petals with transparent green shading lacquer. The hinged flaps or stencilettes are then folded over the floral cut-out to mask part of the design, and a third color, orange, is sprayed on to form intermediate petals. The curved stripes are also sprayed while the stencil is in position over the table top.

It is seldom if ever desirable to use more than three colors in the stencil decoration of a breakfast room or dinette table top, buffet, cabinet or chair. However, when, where or if specifications call for additional colors on some small design, it is possible to use additional hinged flaps like the two shown in the illustration accompanying this article—instead of making additional large stencils. These flaps or stencilettes can be set on one, two, three or four sides of the design, the hinges of each flap being soldered to the main stencil plate. In case multiple flaps are used to cover a single design, the adjoining flaps are usually positioned at right angles to one another. If more than one flap or stencilette is to be attached at each corner of the main stencil, it may be necessary to place the wood frame on the underside of the sheet of zinc to allow a clear flat space around all four edges of the top surface of the main stencil. Of course, only one flap can be folded into position at a time.

Stencil Gun; Spray Pressure

For spraying these stencil decorations we use a small decorating gun that has its trigger on top of the barrel. For accurate control we like this type best. We use a round spray for stripes and a broad flat spray for wide areas. An air pressure of 30-lbs. is sufficient for spraying transparent shading stains, but a pressure of 40-lbs. is necessary for heavy opaque lacquer enamels. Really, in this work, you use just enough air pressure to properly atomize the fluid being sprayed—no more. Excessive air pressure will cause the sprayed material to penetrate under the stencil and produce ragged edges on the decoration.

Booth; Gun Rack; Turntable

The decorating of table tops is accomplished most efficiently in a spray booth that is approximately 8-ft. deep and at least 9-ft. wide. I consider 9-ft. the minimum width for working on 60-in. tables, as they require about 12-in. for clearance on the left side of the booth, when the table is being turned, and about 24-in. on the right side for convenient access to the spray-gun rack.

The spray-gun rack consists of a horizontal arm of 1x4-in. wood positioned on edge and hinged to the outer edge of the right-hand booth wall. At its mid-length it has a perpendicular leg also made of 1x4-in. wood. Nails are driven into one side of the hinged arm to serve as pegs on which to hang the decorating guns. Height of the rack is 38-in. above the floor. When swung into position, away from the wall, this rack gives the operator quick access to the decorating guns. When not in use the rack is swung back against the spray booth wall.

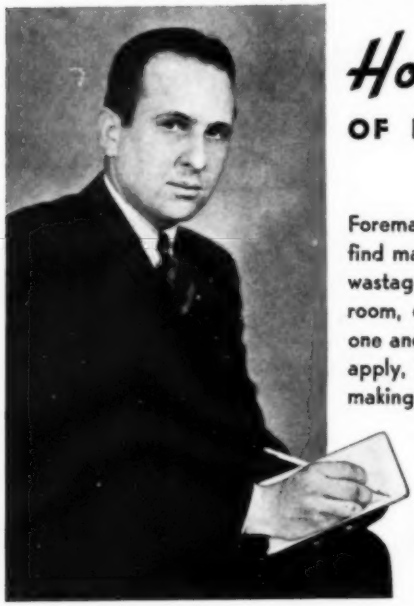
Our turntable is kept level and at a height of 24-in. The finishing department receives tables with aprons attached. These are about 5-in. in depth. Total height of the working surface is then 29-in. above the floor, which I find is ideal for the average workman.

Expansion by O. Hommel Co.

Announcement is made by the O. Hommel Co., Pittsburgh, Pa., that contracts have been let for the construction of a new warehouse and the addition of a one-story building to the office.

Both the warehouse, which includes 10,000-sq.ft. of floor space, and the office addition will be constructed of gray porcelain enamel. This material was chosen for both erections because of its proven imperviousness to the elements and its low maintenance cost.

First place in the Counter Display classification of the Wolf Award packaging competition for 1940 was won by this display of Ruxton Products, Inc. The unit, designed by George Welp and W. H. Ruxton, is used for displaying artists' oil colors. It is finished with white Polymerin, Ault & Wiborg's speed-bake metal finish, a tough, flexible film well-suited to use on counter display stands, which are often subjected to rough use and careless handling.



How to Stop
OF FINISHING ROOM

Foreman finisher reveals where to find many sources of unnecessary wastage in the average finishing room, explains what causes each one and suggests the remedies to apply, thereby cutting costs and making the place more efficient.

BY H. W. CHESTER

IF THE AVERAGE foreman finisher would keep an accurate record, for one week, of the finishing materials unnecessarily wasted in his department, I am sure he would be surprised. Here are some of the things I have in mind: Keep a record of—

1) The quantity of thinners and solvents unnecessarily wasted in cleaning containers and washing hands.

2) The quantity of finishing materials carelessly lost in transferring them from one container to another.

3) The quantity of materials rendered unfit for use or lost because they were in containers that were left open and exposed to dirt, dust and evaporation.

4) The amount of wiping cloths, tow, burlap, brushes, steel-wool and sandpaper discarded before they were worn out or properly used.

5) The quantity of fillers and stains lost through over-estimating what was needed at the time, thus leaving a portion to "go bad" and eventually be discarded.

6) The unnecessarily high percentage of materials that go out through the exhaust fans in the spray booths, because the spray man isn't properly trained and careful enough with his spray gun.

That Needless Wastage

MATERIALS, SUPPLIES AND EQUIPMENT

7) The high percentage of rejects that have to be stripped and refinished.

No one of the items just mentioned represents a great waste in itself, but all of them grouped together amount to something worth thinking about. This wastage of materials and supplies presents a serious problem to every foreman finisher who is striving to keep down the cost of his department.

Washing With High-Priced Thinner

Take, for instance, the problem of washing containers, which is necessary in every finishing room. Frequently a workman will use one or two gallons of thinner or solvent to wash a container when a quart is all that is really needed. Or he may use a 75c-a-gallon lacquer reducer to wash a filler container when white gas costing 20c per gallon is just as good. He may want to wash his hands and, rather than pour a small quantity of thinner or gasoline into another container, he just dips his hands into a full 5-gallon container because it happens to be more convenient. As a result the five gallons of 75c thinner is dirty and unfit for productive use.

Washing his hands in a full 5-gallon can of clean lacquer thinner. It costs him nothing but costs the company plenty.

Sheets of sandpaper are often discarded before they are worn out.

Withdrawing Material from Containers

Many times a workman opens a drum or some other container of finishing material and, after using or pouring out a portion of it, he sets the remainder aside,

leaving the cover or bung either loose or off entirely. The remaining contents of the container are exposed to dirt and dust. Also, there will be more or less evaporation of some of the important solvents used in the formulation of the material. As a result, the material may soon become unfit for use.

Every workman should be taught to carefully clean all dirt, dust, grease, oil or moisture from the outside or top of a container before he opens it. This precaution helps to prevent any foreign matter from entering and ruining the contents. Openings in material containers should always be kept closed except when they must be removed to withdraw some of the contents or for some other necessary purpose.

Steelwool; Sandpaper; Wiping Cloths

Then there is the workman who rolls up ball after ball of steelwool and discards each one, in turn, before it is worn out. Sheets of sandpaper are often discarded long before the abrasive has ceased to cut effectively. The same thing is true of brushes. Many times a workman discards a perfectly good brush because a new one holds a little more stain or varnish, which he thinks will make his job easier. This extravagance costs him nothing but it costs his employer plenty.

"Jake, throw out all of that left-over pigment stain."

"There's about 9 gallons of it, Boss."

"Well, it's a special color we mixed here for that one order of 50 breakfast suites. There's no more jobs like it coming through soon and that stain won't keep long anyway. Get rid of it before the old man comes snooping around."

Haven't you noticed workmen discarding wiping cloths, burlaps and tow before these supplies were completely soiled or worn out—just because new pieces wipe a little better?

The loss of materials in spraying is a problem for every foreman finisher, but a lot of this waste can be prevented by training each spray operator to adjust the width of his spray so it will not be too wide for the piece he is spraying. Teach him to avoid overspraying. This can be done by showing him how to stop his gun at the end of the piece he is spraying and how to avoid running his strokes too far off the edge of the piece being sprayed. All overspray certainly is waste; very little if any of it can be profitably reclaimed.

Over-Estimating Amounts of Stains and Fillers Required

It is important to direct the spray squarely against the surface being coated instead of shooting it on at any angle other than 90°. The air pressure should not be excessive—just enough to properly atomize the material being sprayed. Too much air pressure causes the material to fog and vaporize so that much of it is pulled away by the suction of exhaust fans. The nozzle of the

spray gun should be held within 6 to 10-in. from the surface being coated, depending upon the type of material being used and its viscosity. When spraying lacquer the gun should be held closer to the work than when spraying varnish.

A considerable quantity of stains and fillers are lost through over-estimating the amount of color needed for the lot that is coming through the plant at that particular time. Sometimes a large amount of left-over material must be discarded. This is particularly true of stains that the finisher mixes or has mixed in his department. Usually, these stains won't stay in solution many days, and it may be several days before another lot requiring this same color comes through the finishing room. Of course, most of the stains that come to the finisher already mixed will stay in solution indefinitely, if kept properly sealed.

Most factories use fillers of several different colors. After being mixed and left open (which most of them are) fillers will, through evaporation and exposure, become unfit for use within one or two days, therefore the foreman finisher should be careful to estimate his requirements as closely as possible, so as to avoid having any more mixed filler left than he expects to use within two or three days at most.

Coverage Tests as Estimating Guide

Much of the waste that occurs through over-estimating the required quantity of stains and fillers can be eliminated by running a coverage test to determine how many pieces, such as beds, dressers, chairs, etc., can be properly stained or filled with each gallon of material. The foreman can file this record and use it to estimate the quantity of each material to be mixed for each lot of furniture that comes through his department. He can also refer to this record when ordering stain powders, non-grain-raising stains, fillers, etc. By doing this he avoids accumulating materials that he doesn't need, especially some special materials that he will not be able to use after a certain suite is dropped from the line at the end of the season or when new styles and colors are introduced.

A lot of wastage is accounted for in the needless overspraying done by careless or inexperienced workmen.

Then there is a lot of equipment, such as air hose and spray gun parts, that is thrown away before it is worn out. For instance, the spray gun may cease to work properly. The workmen does not investigate to see whether the part is dirty or worn out; he just puts in a new part, when really all the gun needs is a thorough cleaning and oiling.

Teach the Men How to Work and How to Avoid Wastage

Much of the unnecessary waste in the finishing room can be eliminated by the foreman finisher instructing his men properly and then insisting that the material and equipment be used carefully and economically. This can be done by a foreman who is alert, tactful and firm with his men. I have found that a careful workman is an efficient workman. He turns out better work. A careless workman is inefficient and turns out a poor quality of work.

The foreman finisher who eliminates all possible waste in his finishing room, reduces his finishing costs and immediately increases both the efficiency of his men and the quality of work they turn out. This, I am sure, is or should be the desire and aim of every progressive foreman finisher.

Reduce Rejects That Have to Be Refinished

In every finishing room there are culls or rejected pieces of furniture that must be stripped (or "washed off," as we say) and then refinished. Some of the defects in these rejected pieces are caused by carelessness in finishing. They may consist of sags, runs, stain spots or particles of dirt in one of the coats. The presence of flying dust or dirt in the finishing room can be prevented to some extent by keeping the floors clean and oiled. Some of the rejects probably were culls when they left the cabinet assembly department; others may have been damaged while being handled in the finishing room.

Every foreman should instruct his men to be careful in applying finishing material to all surfaces, and in handling the furniture and moving it over the floor (where there is no conveyor system); also, to *avoid applying any finishing material to pieces that are obviously culls, which eventually will have to be washed off and refinished.*

In some finishing rooms, several gallons of thinner are used each day, and two or three men are regularly employed, to wash off culls and rejects for refinishing. While there will always be some of this in any finishing room, a little more care and attention to details all along the line will help to substantially reduce this source of wastefulness.

Book on Industrial Design

Harold Van Doren, one of the nation's leading industrial stylists, has just published, through McGraw-Hill Book Co., 370 7th Ave., New York, N. Y., the first down-to-earth book on the subject: "Industrial Design, a Practical Guide."

Close-packed with fact, technique and anecdote, Van Doren's book strips the field of product design of its hocus-pocus, and provides a systematic background for both the beginner and the business executive desiring a knowledge of what industrial styling is all about.

It was Van Doren's hope, when he began preparations for the book, that it would give impetus to development of the field and an insight into the mechanics of appearance design. The book is divided into four sections. The first part surveys the field, the second concerns fundamentals and is an elementary treatise on designing in three dimensions; the third deals with the technique of design production; and the fourth offers various problems for the beginner, concluding with case histories describing step by step the development of several products now on the market.

There are chapters on streamlining, fees, materials and processes, design patents, color technique, and suggestions for operating a free-lance studio. There are descriptions of how to make art renderings, presentation models, and all the necessary data the follower of the profession needs to know.

HOW WE SOLVED TWO UNIQUE PROBLEMS IN

Custom Metal Finishing

BY W. K. PERDUE
Foreman Finisher

In custom and special finishing many puzzling problems arise to challenge the foreman's ability, but they must be solved promptly if his firm is to make a profit.

THE finishing foreman in a metal-working plant that manufactures and finishes custom work is often confronted with special problems that never come up in a factory making a standard line of products. He is likely to be called upon to finish anything from a youngster's toy to a new steel house, and to use materials that may range anywhere from the ordinary kinds of paint to some of the more specialized products used in modern finishing.

His work is subject to the whims and foibles of the customer, in regard to the appearance of the finished article as well as the lasting and wearing qualities of what material is used. A finishing foreman in this kind of plant must be on his toes as to what is going on in the "dolling up" process of practically anything that is manufactured.

Here at the Diebold Safe & Lock Co., we take numerous special jobs which are obtained by competitive bidding. Nearly all of them require special set-ups for finishing and, of course, the cleaning process sometimes presents a problem.

Before any article can be properly finished its surfaces must be thoroughly cleaned. All metal products must go through a degreasing process of some kind before any finishing coat is applied. Every foreman knows this. Cleaning is one of the things he stresses. He doesn't have to scratch his head in perplexity about ordinary metal cleaning, because he is or should be conversant with all of the cleaning materials and methods best suited for this purpose. But suppose he is suddenly confronted with a cleaning problem that does not come under the heading of grease and dirt removal.

I have in mind a custom-made article that was quite large—too bulky and heavy to be handled with ease. It had steel plates for sides and a diamond pressed aluminum bottom with four "wells" or box-like projections—something like the accompanying sketch. The "wells" extended down below the bottom about 6 or 8-in., and were assembled by bolting the aluminum plates to angle-iron construction.

The whole unit required considerable drilling, chipping and grinding during the course of as-

sembling. It had to be finished while in upright position; the final coat had to be applied after the assembling was completed. The steel and aluminum plates had been cleaned and primed before any assembling work was started, which assured a protective coat on all joints and hidden parts. No trouble was anticipated in putting on the final finish, but the very first unit gave us grief.

Removal of Metal Chips From Deep Recesses

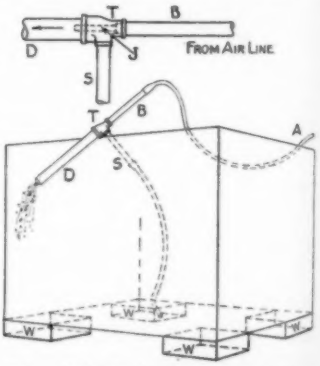
Those wells in the bottom had collected many small chips of metal from the drilling and grinding operations, which had been performed while the plates were being fitted together. These chips had to be removed. Our first thought was to blow them out with compressed air. We tried this but the net result was that we merely shifted the collection of debris from one well to another. The article was too deep for this method to be successful.

We magnetized pieces of steel and tried that, but aluminum isn't affected by magnetism, so that method wouldn't do. Taking the chips out by hand was too slow and could not be considered. This was a production job and it had to be moved fast. The customer was pushing us for delivery and pressure was being brought to bear on the finishing department.

A suction sweeper was suggested and tried, but it didn't have sufficient force to pull out the heavy chips, especially those that had become wedged into the cracks and joints where the plates were fitted together. Our finishing department was up against it. We had to paint the unit, but first the chips had to come out. It was a cleaning job—a cleaning job of a different kind, with an inspector there to see that none of those chips were overlooked.

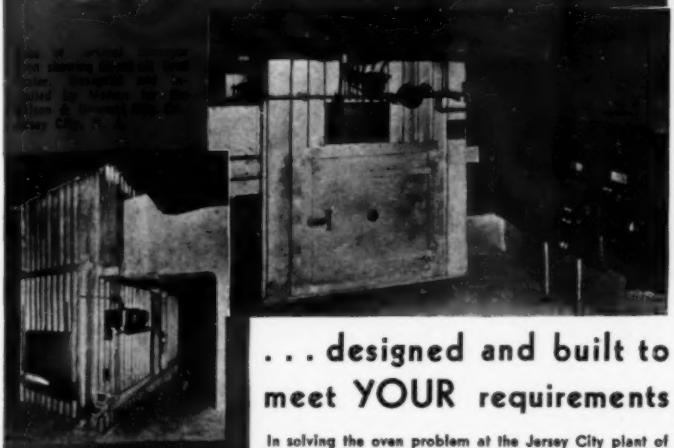
After trying all of the different methods suggested, and finding none of them satisfactory, I sat down at my desk for some concentrated thought on the subject. The suction method seemed to be the only feasable way so, after a few minutes of thinking, I took a piece of paper and began drawing a sketch. I had in mind a little gadget that I thought would work. Pretty soon I had a picture of it on the piece of paper. It did work and, because it solved our problem, I am including in this article an edited copy of the sketch I made.

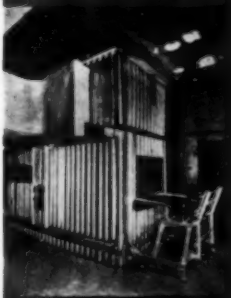
It took our maintenance department about two hours to make up the device. When we tried it out,



Enlarged detail above shows the heart of our emergency device, designed and built quickly to remove aluminum chips and dust particles from the "wells" or depressed recesses in a large metal assembly that we had to paint. How we used it is shown in the main drawing. A represents hose from air line; B is a ¾-in. pipe threaded into T joint; J, ¾-in. pipe threaded into pipe B; S, suction line (pipe and hose); D, 1¼-in. discharge pipe. W,W, wells in bottom of unit.

OVENS





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In solving the oven problem at the Jersey City plant of Wilson & Bennett Mfg. Co., Mahon engineers designed a vertical conveyor oven for drying painted steel barrels. It extends from the basement of the plant up through four floors and through the roof of the building. This design utilizes a minimum of floor space, simplifies the heating problem and makes for economy in operation . . . it is a typical example of Mahon advanced oven engineering. If you are contemplating the installation of ovens of any type, for any purpose, the benefit of a wealth of experience, gained by Mahon engineers through many years of successful oven building for widely diversified industries, is available to you. Call in a Mahon engineer today—consultation will not place you under any obligation.

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IN THE aircraft industry finishes have to be right. They also must be applied quickly and economically ... because the manufacture of airplanes today is being put on a fast production basis. These are the reasons why BINKS equipment is being found in more and more aircraft plants. The BINKS installations in the Curtiss Aeroplane Division at Buffalo, N. Y. (illustrated), are typical. Top: Binks water wash booth used in finishing small parts. Center: Spray painting a fuselage to which dope has already been applied. Below: Spray painting wings and fuselage in special BINKS spray booths designed especially for this work.

No matter what your finishing problem is, it will pay you well to call in BINKS' engineers. For 50 years they have been designing better and faster ways to finish all kinds of products.

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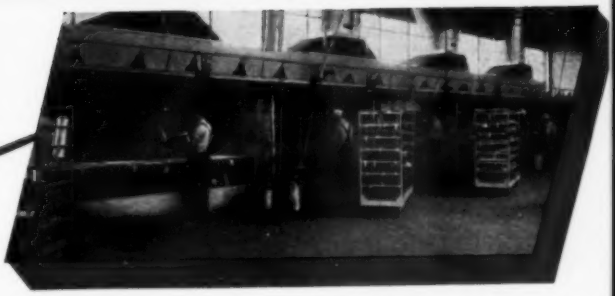

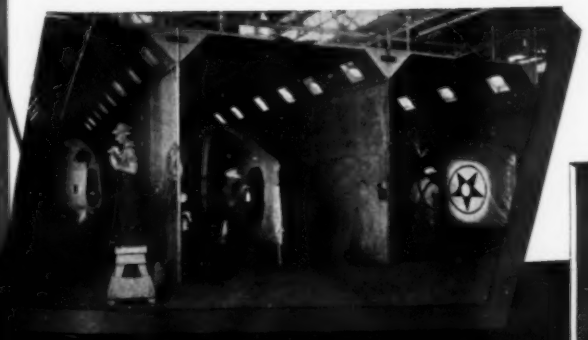

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it worked beyond my expectations. It cleaned those wells out perfectly and even had sufficient suction to dislodge most of the chips that were stuck in the joints.

Our compressed air line carries a pressure of 90-lbs., and connections are available all over the plant.

How Our Emergency Cleaner Worked

Referring to the enlarged detail in the accompanying sketch, the "heart" of the gadget consists of four short lengths of standard iron pipe and a T-joint. Hose to reach to the air line is attached to pipe *B*, and hose to reach down into the wells of the article we had built and had to clean, is attached to pipe *S*, which is the suction line. Pipes *B* and *S* are ¾-in. inside diameter. Discharge pipe *D* is 1¼-in. inside diameter. Threaded into pipe *B* is a ⅜-in. pipe *J*, long enough to extend through the T-joint and into discharge pipe *D*. The nozzle end of pipe *J* is made slightly smaller—5/16-in. to be exact.

Having made our gadget, we were ready to test it. We attached it to the air line, turned on the air, climbed into our unit, and began passing the open end of the suction hose over the bottom and into the wells. Yes sir, it worked to perfection. The chips were drawn through the suction hose *S*, and blown out through discharge pipe *D*. We could draw through the suction hose practically any object that was small enough to go through the ¾-in. pipe. The gadget was quite efficient and, considering the fact that it was made quickly from material that we had on hand, its cost was negligible compared to its value.

Perhaps what I have described here could not, strictly speaking, be classified as a cleaning operation in a finishing department. However, it is an operation that had to be solved in our finishing department and . . . . well, we just solved it, that's all. We solved it by putting a suction principle to work in a simple manner, making it adaptable to the task at hand.

Shortly after this suction gadget was developed, I had occasion to demonstrate how a steel house could be finished by using a combination of paint and marble grit.

Paint and Marble Grit Finish for Steel Houses

Specifications for this house called for a double coat of the paint and grit, meaning that the surfaces had to be sprayed with a coat of special paint that would become "tacky" enough, in a specified time, to hold the marble grit, and that two applications of paint and grit had to be put on.

Of course that kind of finishing is a little out of the ordinary shop finisher's line but, being experienced in custom finishing work, one naturally acquires some knowledge regarding many kinds of finishing. That is where keeping posted on what is going on comes in handy.

The specifications partially explained the method of application, such as either brushing or spraying on the coat of paint, letting it dry to a tacky stage and then, with a bellows or other means, blowing the marble grit onto the paint. They even went so far as to suggest that the marble grit could be spread on a pie pan and then be blown with hand bellows onto the paint.

Another finishing room

The photograph below shows the loading of the cases on the trays and miscellaneous small pieces on intermediate J-Type hooks.

Planned
Engineered
Conveyorized

The Spray Booth on the left hand side is the wiping stain spray booth. Spray booth to the right of center of picture is sealer spray.

by PALMER-BEE at the plant of the Memphis Furniture Manufacturing Company

The above installation is typical of the many furniture plants equipped with Palmer-Bee conveyors. At no cost to you one of our skilled engineers will analyze your plant and production, submit a plan and program through your finishing room — warehouse — cabinet room — machine room. Avail yourself of this service.

PALMER-BEE CO., DETROIT, MICH.

"Good gosh!" I exclaimed, "a painter would have a sweet time going over a house with a pie pan of grit and a hand bellows to blow it on with. That won't do at all."

"All right Perdue," was the comeback, "if that won't do it, what will? It's up to you to show the painting contractor what method to use."

"Okay, okay," I replied, feeling a little "put out" at having to spend time figuring a way to do the job. Still, I felt rather pleased at being put on the spot to work out a difficult operation.

What I had to do in this field demonstration was to make a generous-sized sample of the finish, showing each step in the coating process. I had to make it out of doors as well as in the shop, so as to prove that it would work either way. I made the samples on 16-gauge metal, 2-ft. wide by 4-ft. long, proceeding in the following manner:

Again Our Emergency Device Solves a Puzzling Problem

First, I sprayed on a heavy coat of paint—as heavy as would hang on the vertical metal sheet without causing runs or sags. Within about one-half hour the paint became "tacky." Then I took the same gadget that we had made for removing chips from our special unit and used it to blow marble grit onto the coat of fresh paint. The suction end of the hose was held against the marble grit, which I had placed in a 5-gallon bucket.

We turned on the air and, by manipulating the exhaust end of the device in the same manner as a spray gun would be used, we sprayed onto the paint a very satisfactory layer of the marble grit, making a beautiful job. It took two men to operate this setup. Next day I masked half of the panels and sprayed on the second coat to show the various steps involved in the specified 2-coat job.

So, when some special piece of equipment is rigged up, one never knows how many uses it can be put to. In this case, my little gadget proved its worth twice in the space of six weeks time.

Solving knotty problems in the finishing game puts spice into your labor and makes your life worth while. I think these "unorthodox things" that a finishing foreman has to do at times have a real place in a finishing magazine—and I trust the Editor will think so too.

Finishing Rosewood Veneers

BRAZILIAN rosewood veneers present a problem for the finisher. This wood contains considerable natural oil which should be removed by wiping the bare wood with lacquer reducer or other strong solvent. If this is not done, the wood oil is liable to work up into the finish and turn it gray in spots where the oil is in greatest concentration. If this occurs, the work will have a mottled unsightly appearance. The only cure is to completely remove the old finsh and start all over again, as no amount of surface treatment will remove the grayness due to its having been caused by the oil in the wood itself. The same treatment should be given teakwood as it, also, contains a natural oil.—Mr. X.

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Gentlemen: Please send us a sample of Hilo No. 3303 One Hour Sanding Sealer ....., No. 3401 Gloss Rubbing ....., No. 3404 Alcohol Resistant ....., Flats—No. 3503 Semi ....., 3505 Flat ....., 3507 Dull ..... (Check type desired.) We will need ..... (size sample for our test).

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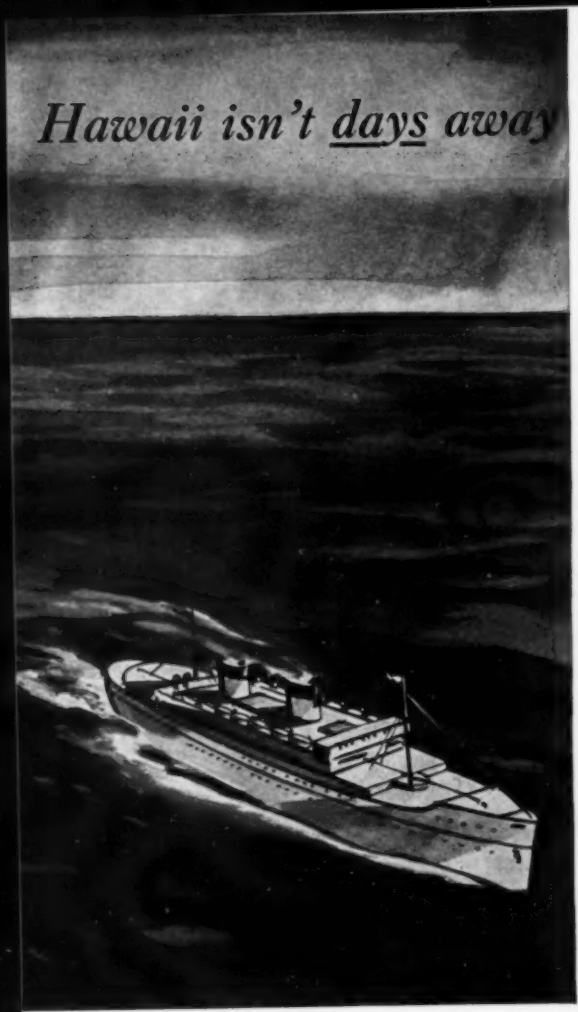

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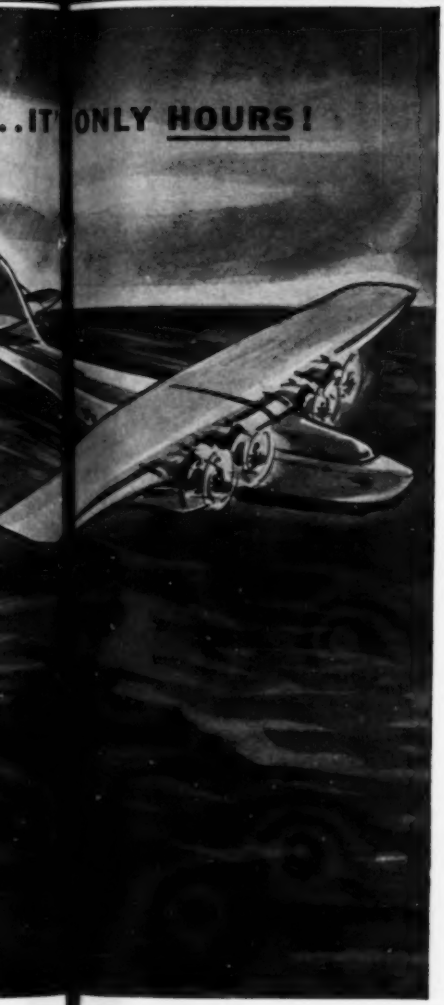

And furniture finishing needn't take 29 hours any more . . .

Now you can put in a 7½-hour schedule from sealer to packer!

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1. Made to dry quickly, at elevated temperatures—2 hours at 150°. . . DULUX offers you a 5½-7½ hour finishing schedule from sealer to packer . . . as compared to the usual 29-43 hour schedule for varnish, and the 22-28 hour schedule for lacquer. DULUX also saves time because it's easy to rub.

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DULUX has a clear, bright film with excellent depth of appearance. It has the resistance to cold cracking, scratching, printing, marring, water and alcohol you expect from quality lacquers. DULUX gives you the combination you've always wanted: a finish with the flow and build of varnish and the speed and quality of lacquer.

If you are interested in streamlining your production line, investigate DULUX—the finish that again fulfills the Du Pont pledge: "Better Things for Better Living . . . through Chemistry." For full information, write E. I. du Pont de Nemours & Co. (Inc.), Finishes Div., Wilmington, Del.

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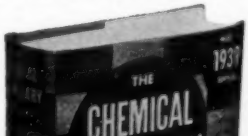

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If you already have Vols. I, II and III, you won't need urging to get Vol. IV. It contains entirely new and different material. It will be just as valuable to you as the previous volumes.

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Velocity of Air Exhaust
IN SPRAY BOOTHS

Editor's Note: Beginning with a short general introduction, this article includes authentic facts submitted by competent spray engineers who know what air velocity is actually needed at various areas in all types of spray booths.

AIR VELOCITY in the paint spray booth is something that varies in some measure because of differences in the sizes and shapes of booths, and differences in the exhaust facilities provided. In a small booth, where the operator is more closely confined, it is not a very difficult or expensive proposition to maintain a relatively high velocity of air—one that would hardly be regarded as practical for larger booths. In these smaller booths, velocities of air entering the exhaust duct will vary from 250 to 500-ft. per minute; usually a velocity of 350-ft. per minute is considered as adequate for the majority of such booths. [See engineers' comments and suggestions which follow these introductory paragraphs.]

In the large booth used for spraying heavy and bulky machinery, automobile bodies and other large work, air velocity is liable to be less than 200-ft. per minute through such exhaust openings as are provided. In some cases, exhaust openings are located in floor gratings, while in others they are in a canopy above. Nearly always, the admission of fresh air is in a location opposite to the exhaust ducts, so that the fumes will be carried toward the exhaust with maximum efficiency.

There is no longer any reason for making a guess at what the air velocity is at the intake of a duct or elsewhere within the booth. Instruments known as air velocity meters are now available and in use for this purpose. In the case of spray booths, of course, the reading will be taken at a time when there is no paint in the air, but when the exhaust facilities are in operation. Such meters are sensitive enough to detect an air movement of as little as 20-ft. per minute, and in some cases they are actually used for such purposes. The reading is direct and instantaneous from a scale in the instrument.—J. H.

We find the foregoing article accurate as far as it goes, but we

wonder why the writer mentions the velocity at the exhaust duct opening. What the Industrial Commissions and Health Boards are demanding is that there be at least 100-ft. face velocity over the entire area of the spray booth, no matter where the air velocity meter reading is taken. This is the important point, and not the velocity at the actual exhaust duct, which may be considerably higher.—BINKS MFG. CO.

Duct Velocity, 1500 to 3000-f.p.m.

Mr. Hyler's article is a bit too general for a specific treatment of air velocities in spray booths. Mention is made of velocities of from 250 to 500-ft. per minute in the exhaust duct of a small booth. In reality the duct velocity will vary from 1500 to 3000-ft. per minute, depending upon the fan size. But duct velocity is a by-product rather than an important provision in spray-booth operation. Of course, you must have duct velocity in order to accomplish your purpose, but the thing that you are primarily interested in is the movement of air across the face of the spray booth rather than through the exhaust duct.

Air velocities in canopies, cabinet- type booths, down-draft booths, staggered booths, and others too numerous to mention, are dependent on the type and size of article being sprayed, number of spray operators, type of material, and production requirements.

Incoming Air Should be Filtered

Location of the air supply is important in the successful operation of any booth and should be so located as to prevent any cross draft at the spray booth. When air is supplied mechanically to the spray room it should be filtered and heated and uniformly distributed into the spray room in such a manner as to create an excess over that being exhausted, and at the same time allow for the proper functioning of a natural air flow through the spray booth.

We are unable to comment on the air velocity meter mentioned by the author of this article as we are not familiar with this particular instrument, preferring an anemometer or a velometer.

Required Air Velocity in Operator's Breathing Zone

For general purposes, involving the use of paints, varnishes, lacquers, enamels, etc., the standard of the spray equipment manufacturing industry has for years been an averaged minimum air velocity of 100 linear feet per minute in the breathing zone of the operator, under actual operating conditions. This average is determined by the use of the vane anemometer or Kata thermometer and blocking off the face of the booth, or other representative cross sectional area, in about 12 squares and taking the readings of each, averaging the same for the minimum.

In porcelain enameling, ceramics, etc., 150 linear feet is used as an averaged minimum because of the nature of the materials (free silica) used.

In New York state, in the finishing or refinishing of automobiles only, with materials which contain more than 2% of lead, 1% of benzol or 1% of methyl alcohol, the Department of Labor

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CAR HEATERS . . . radios . . . basement appliances . . . any product which stands against a dark, shadowy background . . . literally stands out when finished in Berry Brothers MULTIFORM. MULTIFORM demands attention, and creates consumer favor wherever used. Dominates salesroom displays! Creates new enthusiasm among sales force. Smooth . . . easily kept clean . . . nothing to catch dust . . . many smart, modern, two-color effects . . . no special equipment needed. As economical as enamel. Let us finish one of your products in MULTIFORM. No cost. No obligation. Write for complete information.

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rule requires 150 linear feet per minute in the breathing zone of the operator; in all other operations the 100-ft. rule applies in that state.

In Michigan, The Department of Labor and the Fire Marshal's Division of the Department of Insurance rules prescribe "an average air velocity of not less than 90 linear feet per minute at the face of the booth."

In the few other states having a spraying code, the standards of the spray-booth manufacturing industry are accepted.

The National Board of Fire Underwriters (Rule 24 NBFU Pamphlet 33, Regulations for Paint Spraying and Spray Booths) refrained from prescribing a definite air velocity, after due consideration, because of the great variety of conditions in the many thousands of installations, but simply provided that: "Exhaust systems shall be so designed as to maintain sufficient air velocity and circulation to adequately remove vapors and residues."

The cabinet spray booths of the leading manufacturers of such devices have been tested and listed by the Underwriters' Laboratories, in accordance with these standards of the industry.

Generally, the standard cabinet spray booths of such manufacturers really exceed 100 linear feet per minute air velocity.

Where unusual conditions prevail, even higher air velocities are provided, though for average conditions the averaged 100-ft. per minute minimum has for decades proved adequate to control either fire or potential health hazards where toxic materials may be present.—THE DEVILBISS CO.

Diebold electrically-operated fireproof Rekordesk safe used for index card filing system . . . . finished in grained walnut with stainless steel base.

Mr. W. K. Perdue, foreman finisher and writer of articles for I. F. magazine, submits this as one of many samples of his department's work. We are glad to publish pictures of attractively finished products in modern streamlined design. Send in a clear photograph and description of the finish or color scheme used.

Hilo Appoints W. J. Cummings to Manage Chicago Division

Hilo Varnish Corp., Brooklyn, N. Y., announces the following three appointments:

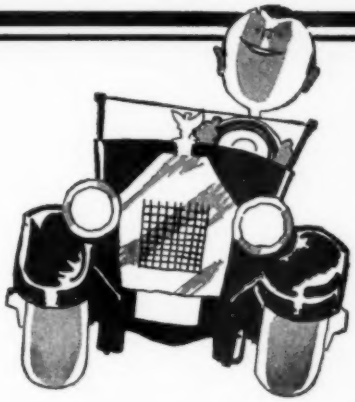
William J. Cummings becomes General Manager of the Chicago Division. Mr. Cummings joined Hilo May 4, 1914, and has been active in sales and credit work in the Chicago Paint industry.

Mr. William M. Leisen, formerly office manager, is now taking up the selling of architectural finishes, for which he has prepared himself by working up in every department in the division.

Mr. Vic Hansen has joined the Hilo staff to cover the wood furniture and metal industries in Chicago. He has been active in service work in that connection for some years.

Buffing Polishing Pads

Sheep skin and pile fabric polishing discs, buffing bonnets, rubbing pads and polishing mits, for use in machine and hand rubbing and polishing operations, on finished surfaces are announced by Nelco Industrial Products Co., 17 E. 42nd St., New York, N. Y. The company's new catalog sheets list, describe and give prices on these items.



"Paint it any color at all . . . so long as it's black" doesn't work TODAY

Not so many years ago a well-known automobile manufacturer made that statement. But, because he happened to be an extremely shrewd manufacturer, he changed his mind. The REASONS which prompted him to change his mind probably apply to the finish of YOUR product, too. This point is worth thinking about. And, if your thinking seems to indicate that specific, practical and expert suggestions would be in order, address Department D—

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A SUBSIDIARY OF THE STANLEY WORKS, NEW BRITAIN, CONN.

Striping Red for Chromium

Will you please let us know where we can secure a bright vermilion red fast air-dry striping synthetic or lacquer, for use with a striping tool on chrome-plated parts such as bumper guards for automobiles — a material that would have good adhesion? We have tried a few put out by the —— Co. and the —— Co., but find that after being striped, the paint lifts. — S. Co. (Automotive and Radio Accessories).

We believe the materials of the companies you have mentioned should be satisfactory, *provided you have pre-treated the chrome parts properly before applying the red stripes.* We understand that there is a sort of film forms over chromium plating which has a tendency to prevent the adhesion of any paint or lacquer coatings. This film must be removed before an attempt is made to coat the chromium surfaces with paint. One material used extensively for this purpose is a metal-cleaning solution which doesn't harm the chromium plating.

Some finishers simply wipe the chromium surface with a cloth moistened in a solution of this material, before applying paint or enamel stripes. Of course, the surface is allowed a few minutes to dry before the paint stripes are applied.

If you haven't any of this metal cleaner handy at the moment, you might try wiping the chromium surfaces with lacquer thinner or alcohol before applying your striping material.

If the striping materials of —— Co. and —— Co., do not hold, even after this pre-treatment, we suggest you try materials from one or all of several other concerns whose names we are sending you by letter. We will be interested in what results you have, and would appreciate hearing from you after you have solved this problem of striping on a chrome-plated surface.—Ed.

Questions Answers

3-in. Color Band

In finishing some of our metal cabinets we find it necessary to mask off a part of the surface and spray in a stripe about 3-in. wide. In past issues of INDUSTRIAL FINISHING we believe we have seen advertisements on striping machines and small rollers which will give a stripe of the required width (3-in.) and in this way eliminate the costly masking operation.

We would be pleased to have you send us the names of firms manufacturing this equipment, so that we might communicate with them directly. If you have any further ideas on how this masking operation might be eliminated, we would appreciate hearing from you further.—N. Mfg. Co.

We are pleased to suggest and recommend a number of manufacturers of striping tools. To our knowledge, however, none of these

SCOTCH MASKING TAPE

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PRESSURE SENSITIVE • NO WATER REQUIRED

You can be sure of the same dependable performance whether tape is applied along straight or curved lines, on flat or contoured surfaces or at edges of recesses.

Scotch Masking Tape prevents penetration and will not lift under spray pressure. When tape is removed, the job is done—no residue is left for after cleanup.

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The Desire To Serve — The Ability To Produce

Canadian Manufacturers and Distributors, CANADIAN-DUREX ABRASIVES, LTD., 154 Pearl St., Toronto, Can.

concerns has a striping tool or machine that will make a satisfactory stripe 3-in. wide. They are doing well to make one as wide as ⅜-in.

Your workman might run as wide a stripe as the tool will make, say ¼ or 5/16-in., at both edges of the band and then place in position a sheet metal mask or shield to protect areas outside the stripes, and spray the space between the stripes to complete the wide band. The protective mask, of course, would not touch the stripes or metal cabinet but would come very close to it. It's purpose would be to prevent any spray from reaching beyond the border stripes.

It is questionable whether this striping and spraying between stripes would be even as rapid as the use of masking tape. Masking tape is used quite extensively and probably this is your best method after all. The automotive people use it and they are always after the best—the most satisfactory, quickest and most economical. Perhaps some experts in the masking tape business can help you improve upon your present methods.—ED.

Antiquing New Copper

Can you supply us with any information on a method of imitating the aged effect or patina on a new copper surface?—L. F.

Probably the most simple method of producing the aged or antique effect on new copper is to dip it in a solution of sulphuret of potassium (liver of sulphur) the solution being made up in the proportion of ½-oz. of S. P. to one gallon of water. The solution is generally used at room temperature unless rapid action is desired. Potassium sulphuret deteriorates very rapidly. However, it is inexpensive, therefore it should be made up new daily or as often as used.

Naturally, the copper to be submitted to this treatment must be free from grease and discoloration. An instant dip will produce a golden tan, changing in rapid succession from tan to varigated (rainbow) to straw, back to rainbow, to dark blue, to brown, to blue black.

By brushing the copper oxidized to a straw color (using a fine soft wire wheel operating at from 600 to 1000-r.p.m.) a very beautiful dark brown, known as statuary bronze, can be produced. The brushing is done dry and with light pressure.

A verdigris (green) effect can be produced chemically, but expert knowledge is required and the process is slow and expensive, hence such an effect is usually obtained by oxidizing to any desired shade, then over-spraying with special green lacquer which is wiped off in spots with lacquer thinner. The oxidizing may be relieved on a buffing wheel, or with wet pumice, or fine abrasive paper.—H. HIGERT.

Here is the formula for a solution that will give new copper a brown color if put on and wiped off after a few minutes.

Verdi Antique Solution

Sulphate of Copper	(ounces)	8
Sal Ammoniac		8
Salt		4
Acetic Acid		2
Chloride of Zinc		1
Glycerine		1
Water	(gallon)	1

ADD $ Sales Appeal WITH DAY ENAMELS

The wide variety of Day Enamels enables you to select the one best suited for your requirements. Day Enamels are made in Lacquer, Varnish, Synthetic and Spirit bases. They are prepared for spraying, dipping, rolling, brushing, tumbling and screening.

In Day Enamels you can be sure of greatest sales appeal through clearness and brightness of color, and standardization of shades in different shipments. The smooth working qualities of Day Enamels make application easy.

Mention your requirements and we will submit recommendations for an appropriate enamel finish.

The Day Standard color card shows thirty-six attractive colors. Other shades are made to order. Ask for a copy.

JAMES B. DAY & CO.
• CHICAGO •

If it is left on and stippled just before it dries, it will produce a verdi antique finish. After it is thoroughly dry it can be lacquered and waxed.

Patina Finish on Copper

The following solution gives a fine yellow or liver color.

Copper sulphate	(lb.) 1
Caustic Potash	½
Water	(gallon) 1

Add a little potassium chloride. Dip copper plated work and use steel wire scratch brush. These operations should be repeated for a deeper color.

Brown on Copper

Make a paste with red sulphate of antimony and weak aqua ammonia. Apply to surface of copper with a brush. When dry, dust off the dry powder. Repeat for a deeper color.—A. L. MEDEL.

Mix Water Stains in Soft Water

IN MIXING water stains, soft water is desirable; the powders dissolve more quickly and thoroughly in soft water than in hard water. If your water is hard, as much as 6-oz. of borax or lye should be thoroughly dissolved in a 4-gallon pail of hot water. Then the proper amount of stain powder should be thoroughly incorporated, and the pail should be placed over hot steam pipes until the stain is in complete solution.

If the mixing is rushed and the powder is not completely dissolved before the stain is used, the stain job will not be uniform in shade. The first work stained will be lighter in color than the last, as the stain will gain strength as the powder continues to dissolve during the progress of the work. By preparing stains as recommended above, their strength and clarity will be greatly improved.—M. T. Penn.

Non-Fade Auto Colors

Tests indicating the possible application of vat dyes in automotive finishes were reported before the American Chemical Society by Crayton K. Black, Du Pont Co. chemist at the Cincinnati meeting of the organization on April 10.

Vat colors are the fastest dyes known to science. The same characteristics which make them so valuable as textile colors may be carried over into the pigment field, the speaker told the Society's Paint and Varnish section. Durability problems in automobile colors, particularly the need for greater light fastness in tints, may be solved by employment of dyes to fill "certain gaps in our present line of pigments," he said.

"The need for colors of greater light resistance has been intensified by advent of the so-called metallic finishes," Dr. Black emphasized. "In this type, aluminum powder replaces a portion of the pigment so that a tinting effect is obtained. Many colors with adequate light fastness in full shades do not retain them under these conditions.

"Automobile stylists have been greatly handicapped because of inability to secure light-fast shades of the desired hue."

Dr. Black cited a number of tests which he said indicated possibilities in the use of vat dyes to fill these requirements.

A vat blue was ground into a nitrocellulose lacquer and painted on auto body steel panels. Comparisons after ten months exposure in Florida showed "very little" change, while other blues either turned green or faded completely.

The speaker displayed another set of panels contrasting a "thioindigo" dye with the azo maroon pigments in use. In this instance a metallic finish was used, and exposed 12 months. The thioindigo dye was shown to have experienced far less color change than any other maroons, and exhibited no bronzing under buffing, an important property of a maroon.

"Despite a relatively high pigment cost," he concluded, "vat dyes may prove an economical solution, particularly in the case of pale tints where only a small quantity of vat color is required."

EGYPTIAN

ZINC CHROMATE PRIMER

Especially suitable for application on all types of **INDUSTRIAL PRODUCTS**

- An excellent rust-inhibiting undercoat.
- Spray, dip, brush or roller coat application.
- Dries rapidly at room temperature to take lacquer or High Bake N-F-R.
- May be used in multi-coat single bake systems, saving costs, time and baking operations.
- Fills and bridges minor imperfections in metal surfaces to a marked degree.
- Lays smooth and has excellent spreading capacity.
- For exterior and interior use.

Ask for further details

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HIGH-BAKE N-F-R
PERSPIRATION RESISTANT LACQUER
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FLEXIBLE CLEAR LACQUERS
COLORED ENAMELS
WRINKLING LACQUERS
NOVELTY FINISHES

Details on Request

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ROCKEFELLER CENTER
NEW YORK

EGYPTIAN FINISHES

EGYPTIAN *Superior* FINISHES

Portable Spray Equipment

Featuring an attractive, modern, streamlined design, unusual performance, and an appealing price, a new series of small spray-painting outfits, known as the NCB, has just been announced by The DeVilbiss Co., Toledo, Ohio.

Although the line consists of five different spray equipment assemblies, all outfits are built around a radically new and different ¼-hp. motor-driven air-compressing unit. Three are cup-gun outfits and two include a pressure-feed paint tank of 2-gallon capacity.

The air-compressing unit is composed of a ball-bearing, piston-type compressor, directly connected to a standard ¼-hp. motor. These, together with the air strainer, crank case and pulsation chamber, form an integral unit enclosed in a streamlined housing. The exterior surface has been given an attractive crystaline finish in two colors.

More outstanding than its design is the performance claimed by the manufacturer. The unit is said to have the capacity of most 1/3-hp. and many ½-hp. outfits; rated displacement is 4.3-cu.ft. of air per minute at 40-lbs. pressure; actual air delivered at this pressure 2.6-c.f.m. maximum pressure, 50-lbs. Construction is sturdy and the outfit will perform consistently without breakdown or repair. The unit is compact, light weight and easily carried; provided with four rubber feet, the outfit is free of vibration and will not crawl.

Streamlined
efficient
economical
dependable
satisfactory

New...

MATERIALS
SUPPLIES
EQUIPMENT

Prepares Galvanized Iron for Paint

The primary function of "Galvaprep," a product of Neilson Chemical Co., 6564 Benson St., Detroit, Mich., is to properly treat and prepare various zinc surfaces so that an enduring adhesion can be provided for paints or finish coatings. This adhesion is obtained through the chemical reaction of the solution on the zinc surfaces. The etching action of the Galvaprep insures an ideal toothed base to which both the coating and paint will bond firmly.

Galvaprep removes or neutralizes all corrosive agents that are harmful or detrimental to the paint and which eventually contribute to the

Artist's Model, Debutante, or YOUR PRODUCT . . .

Beauty is a virtue that will not be denied whether it be in artist's model, debutante or your commercial product. All three may have the basic element of beauty in graceful contours, but to enhance their natural comliness all three must rely upon finish . . . cosmetics on the one hand, stains, lacquers and paints on the other.

To help manufacturers solve their finishing problems we maintain a creative studio where products are studied and practical finishes of a sales-stimulating nature are conceived.

If you will write us regarding your products and finishing problems, we will give you complete information regarding our studio service for which there is no charge to reputable firms.

FREE—A 7x9 print of above illustration, suitable for framing, sent upon request.

ROCKFORD VARNISH COMPANY

Manufacturers of Finishing Materials

ROCKFORD • ILLINOIS

NO TAMPERING WITH QUALITY

general break-down of the finish. The normal oxidation usually produced on zinc surfaces by weathering for several months is effected in a matter of minutes by the use of this chemical.

The chemical is mixed 50/50 with water and applied to zinc surfaces by dipping or brushing, then rinsed off in hot or cold water.

Small Mixer

The Mixing Equipment Co., 1062 Garson Ave., Rochester, N. Y., announces its New Model "F" Laboratory Mixer equipped with an adjustable-speed friction drive. It provides constant horsepower at the propeller and increasing torque with slow speeds. A turn of a thumbscrew increases speed up to a maximum of 1750-r.p.m., or decreases speed until mixer is barely rotating. There are no gears to wear out and no rheostat to buy; likewise no commutator or switch.

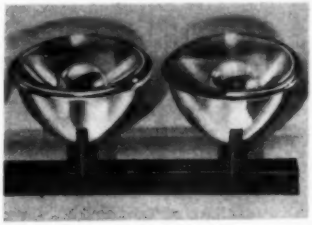
The Model "F" mixer, mounted on a special ring stand clamp, may be used on beakers as small 300-cc. without spilling or throwing out contents. Model "F" mixers have been on tanks up to 20 gallons in size to produce gentle agitation. A convenient carrying handle makes it easy to use as a hand mixer without clamp or stand.

The Model "F" Mixer is recommended for use with inflammable materials, since its motor is totally enclosed. Widely used in the laboratory for making up standard solutions, stirring constant temperature batch, making up test batches, etc. Also popular for small production lots of cosmetics, fine chemicals, pharmaceuticals, etc.

Handy for small mixing jobs.

Protective Unit for Baking Lamps

The Protecto-Ray Unit, a recent development by the Infra-Red-Ray Devices, Inc., 9325 E. Forest Ave., Detroit, Mich., is a completely enclosed polished aluminum housing with removable doors of heat-resisting glass for enclosing and protecting infra-red ray baking lamps. This unit is designed particularly for use in locations where dust, paint fumes, oil, etc., are likely to collect on the reflectors.



Covers and protects lamp and reflector.

An outstanding feature of this unit is the removable glass doors which allow the removal and replacement of heaters without causing costly production delays. This unit will do a heating, baking, enameling or dry-

Always Uniform in Texture of Wrinkle, Color and Viscosity

YARNALL
THE SHIELD OF PROTECTION

Industrial manufacturers who want a really reliable wrinkle finish are turning to this product that has definitely proven itself as being absolutely dependable.

YARNALL PAINT CO.
54th & Grays Ave., Philadelphia, Pa.

YARNALL WRINKLE FINISH

ing job as efficiently as any open unit.

The accompanying illustration shows two reflectors in a section of five. Each reflector is 10¼-in. in diameter and is equipped with a 375-watt heater. Fuses are built in the casing that houses the electrical connections. Standard section includes five reflectors, complete ready to plug in for immediate operation. Units can be built to the user's particular requirements.

Metal Cleaner for Machine Cleaning

D. C. Special Cleaner is the name of a new product developed especially for continuous metal-cleaning operations where conveyor washing machines are used. This cleaning compound has proved to be remarkably efficient and enconomical for the cleaning of steel and iron parts on the production cleaning line. Strong cleaning solutions are made up by adding only ½ to ¾-oz. of cleaning compound to each gallon of water at 190°F. . . . a product of D. C. Cooper Co., 20 E. 18th St., Chicago, Ill.

Easy Portable Electric Sander-Rubber

The new 1940 model "Easy" portable all-electric sander is extremely flexible . . . . designed to replace slow, tedious, expensive hand sanding or rubbing operations on flat, curved, or irregular surfaces. It is adaptable to practically every production smoothing operation on wood in the white, metal, bakelite, slate, leather, plastics, or composition material. It is excellent for sanding or rubbing primer surfacer or sealer coats, shellac, varnish, lacquer, enamel and other finishes.

Many improvements have been made in the 1940 model. Perfected drive mechanism, increased power, improved positive lubrication and scientific balancing of the entire unit insure smooth, convenient operation on horizontal or vertical surfaces.

Ample power is furnished by a sturdy ball bearing, Universal motor available in 110 and 220-volt models. A large fan provides adequate forced

Operates from A.C. or D.C. light socket.

ventilation of cooling. A filter removes injurious dust and grit from air before entering motor.

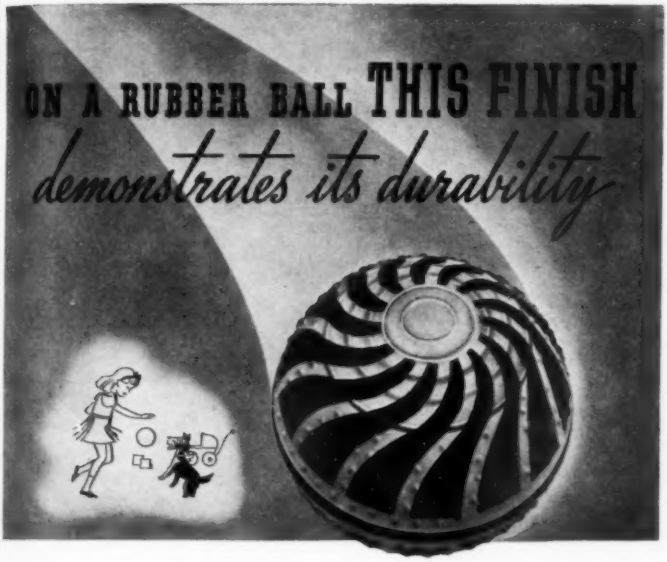
One-third of a standard size sheet of abrasive (any grit) fits the Easy pad without waste. A new improved type of abrasive holder has been developed that holds the abrasive paper tightly on the sanding pad, thus eliminating loss of cutting action commonly experienced when abrasive paper is loose on pad. From one to several pieces of paper can be quickly and securely attached at one time.

This machine is a product of the Detroit Surfacing Machine Co., 7433 W. Davison Ave., Detroit, Mich.

Hammerkraft and Spatter Finishes

Hilo Varnish Corp., 42-60 Stewart Ave., Brooklyn, N. Y., announces release of two new sales-appealing finishes—Vitra-Carlite Hammerkraft and Vitra-Carlite Spatter. These materials are especially designed for use on circulatory heaters, coal and oil furnaces, hot-water heaters, stove shells, etc., where beauty and

ON A RUBBER BALL THIS FINISH *demonstrates its durability*



Stretch it, hammer it, Flex-Cote takes a beating with impunity ... If your product on any surface requires a tough, beautiful flexible finish that will stand up under severe fabrication and sterilization, then Flex-Cote will show you a degree of service unapproached by any other product. Write for sample and advise if application is to be by spray, brush or roller.

FLEX·COTE

TOUGH JOB HEADQUARTERS

℞ Prescription Finishes

Give us your metal coating problem. We guarantee you an answer based on your conditions, and not just a standardized formula.

. THE WATSON-STANDARD CO.

Manufacturers of

PAINTS . . . VARNISHES . . . INDUSTRIAL FINISHES AND LITHOGRAPH COATINGS

FACTORY AND GENERAL OFFICES: PITTSBURGH, PA.
WAREHOUSES: BOSTON · BUFFALO · DETROIT · NEW YORK

durability of finish are prime requisites.

Made in Vitra-Carlite quality, both finishes have excellent adhesion, heat resistance and toughness. The hammered and spatter effects are easily obtained, requiring two spray operations but only one bake—300° F. for 20 minutes.

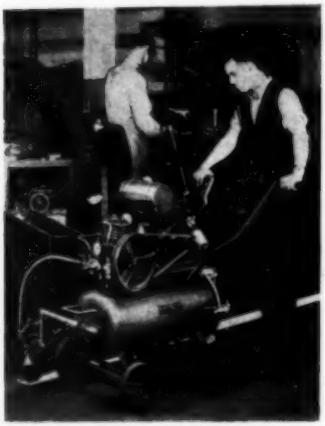
"A 2-tone, hammered-effect finish that will readily cover defects in the metal, but yet have a smooth, easily cleaned surface" was the outcry of the majority of visitors to the Hilo Exhibit booth at the recent Sixth International Heating and Ventilating Show, held in Cleveland, Ohio. Vitra-Carlite Hammerkraft and Spatter fit this need.

Spray Line Marker

Binks Mfg. Co., 3114 Carroll Ave., Chicago, Ill., announces their new No. 240 Spray Line Marker, which is a complete self-contained portable spray unit for the markings of traffic lines for highways, city streets, warehouses, airports, steel mills, large factories, and wherever traffic lines are important.

The unit is ideal for one man operation; will lay down a stripe from 2 to 6-in. in width at the rate of one to four miles per hour, depending on the condition of pavement or floor. It is equipped with a ¾-hp. gasoline engine and four pneumatic tires. A 12-gallon material pressure container keeps the spray gun supplied with material.

The operator has a clear view at all times of the old stripe or the guide lines laid down.



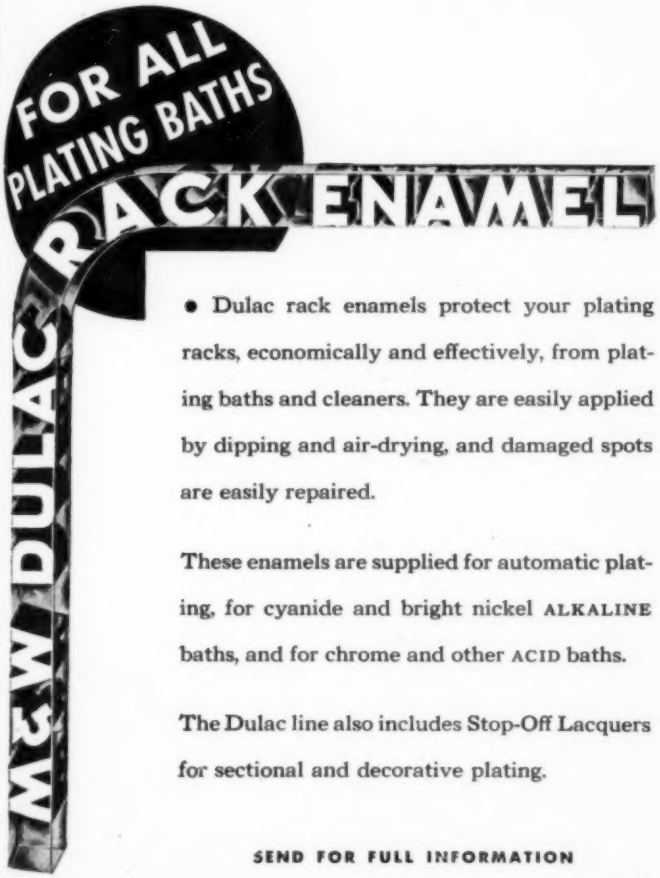
The new traffic line marker in operation.

Enamel for Plastics

That old political strategy, "If you can't lick 'em, join 'em," apparently has been adopted by industry, as shown by the announcement of a new enamel for coloring plastic parts. Recently developed by chemists of the Sherwin-Williams Co. of Cleveland, Ohio, the new finish makes it possible to coat cheap black plastic material with beautiful iridescent colors—a technique already being used by Crosley Radio Corp. for radio cabinets and by General Electric Co. for electric iron handles.

Although one of plastics' major claims has been the elimination of all finishing operations, it has been necessary to use costlier resins and expensive pigments in order to achieve the more brilliant colors required in modern appliances. Working on the theory that color need be used only on the surface and not throughout the entire molded piece, Sherwin-Williams' chemists worked for years on the problem of getting proper adhesion for such coating materials. The smooth "greasy" surface of plastic moldings heretofore prevented successful coating.

The new enamel, called Kem Bakelescent in the iridescent form and Kem Plastite in solid colors, can be dipped or sprayed on plastic parts and combines any color of the rainbow with an extraordinarily long-wearing surface. Other moldings which are now being finished with these new coatings are vacuum cleaners, electrical wiring devices, and automobile parts.



• Dulac rack enamels protect your plating racks, economically and effectively, from plating baths and cleaners. They are easily applied by dipping and air-drying, and damaged spots are easily repaired.

These enamels are supplied for automatic plating, for cyanide and bright nickel ALKALINE baths, and for chrome and other ACID baths.

The Dulac line also includes Stop-Off Lacquers for sectional and decorative plating.

SEND FOR FULL INFORMATION

Maas and Waldstein Co. Newark, N. J.

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LACQUERS **PIONEERS IN PROTECTION** ENAMELS

Electric Burn-in Knife

An electric burning-in knife for burning in stick shellac or stick lacquer to make surface repairs in damaged furniture, is announced by

Works on 110-volt A.C. or D.C.

Finishine Laboratories, Syracuse, N. Y.

Features mentioned by the manufacturer include:

1) Exclusive new refractory core construction makes it practically impossible to burn this knife out.

2) Equipped with hand-forged copper interchangeable blade which may be bent or ground to any shape desired.

3) This copper blade will pallet out your Lacstix or Shelstix with less adhesion. Extra blades available.

4) Approximately 10-ft. of asbestos-covered cord makes this knife easily accessible.

"Cell-O-Stain"

(Seals and Stains)

Here is a newly developed double-action wood-finishing product announced by the Advance Paint Co., Indianapolis, Ind. Quoting from the manufacturer's letter:

"Cell-O-Stain is a product having extreme light fastness and non-grain-raising qualities plus the advantage of a binder. This gives the sealing qualities of a wash coat without the cost of additional finishing operations and materials.

The presence of the binder in Cell-O-Stain eliminates the necessity of any wash coats, thereby preventing the undesirable staining usually resulting from the filling process. The light sanding, necessary when wash coats are used, is eliminated; as Cell-O-Stain does not lift the grain of the wood.

The product has unusual clarity and stability and is unexcelled in its uniformity. Although developed primarily for spraying, it can be applied by dipping or brushing where the surfaces are not too large; can be furnished in any color and is sold ready for use; however, if reduction is desirable, a special reducer is recommended."

Measures Heat; Tests Other Meters

A new type of portable potentiometer-pyrometer for measurement of temperatures by thermocouples is announced by J-B-T Instruments, Inc., 441 Chapel St., New Haven, Conn.

The instrument, Model 70-PO, has important applications in industrial and laboratory temperature reading. It is also designed for testing permanently installed temperature measuring and controlling equipment; requires less balancing and less effort to operate than any previous potentiometer.

The 6¾-in. temperature scale may range from minus 50 (—50°) to plus

Weighs less than 5½-lbs.

1. NORMAL FLAT LACQUER | 2. NEW "500 LINE" CLEAR FLAT LACQUER | 3. CLEAR LACQUER

HERE'S NEWS FOR THE FURNITURE INDUSTRY!

A flat lacquer that's transparent! Free from the cloudiness of normal flat lacquers, making it especially suitable for use on mahogany. Same clarity in all sheens.

How is it done? The answer is—a distinctly new development by The Glidden Company, and *available only in the Glidden "500 Line"* of fine furniture finishes.

The above is an *unretouched photograph,* taken through three bottles filled with lacquers. See how clearly the type and background show through the center bottle of "500 Line" Clear Flat Lacquer, compared with the typical flat lacquer on the left. Note the close approximation in clarity to the clear lacquer on the right.

We'll gladly demonstrate further to you. Write for samples to check against any normal flat lacquer you're now using. Seeing is believing!

THE GLIDDEN COMPANY • **National Headquarters, Cleveland, Ohio**
Branches or Factories in Principal Cities

50°F. up to 0-3000°F. Each scale is drawn to customer's requirements. Knife-edge pointer with mirror scale to avoid parallex is optional; double-scale instrument also is available.

Sprayit Flock Gun

The Model FL flock gun, announced by The Electric Sprayit Co., Sheboygan, Wisc., is made of aluminum alloy; is light in weight and its comfortable revolver grip makes it extremely easy to handle. All controls are located at the back of the gun. The full range of adjustments, including changing from a round to a fan spray, is achieved without adjusting the nozzle, and permits the easy application of any grade or quality of flock, glow beads or other types of powders.

An important and extremely desirable feature of this flock gun is

Simple and easy to operate.

the inclusion of an oil-and-moisture filter in the handle of the gun, thereby eliminating any possibility of dampening the flock, which might cause it to become lumpy and clog the nozzle. Gun may be had with a 1-quart glass jar, a 2-quart glass jar or a 1-quart aluminum container.

Ventilating Fan

The Truflo Fan Co., 529 Main St., Harmony, Pa., announces a new series of portable man cooling fans, available in sizes ranging from 12 to 36-in. in diameter.

The accompanying illustration shows a 36-in. pedestal fan. It is 48-in. high to center line of fan wheel, and has a 32-in. diameter cast-iron base and 4-in. pipe stand. A special ¾-in. round steel bar is electrically welded to the motor base and bolted to top of guard for handling with crane. This fan has a 3-hp.

Sturdily built and well guarded.

motor—60-cycle, A. C., 1150-r.p.m. Total weight of the stand, guard and propellor, a 4-blade solid cast-aluminum wheel, is 356-lbs.

These fans are sturdily constructed for hard usage and are so designed that the flow of air does not necessarily play directly on the worker. Drafts are eliminated and cool comfortable working temperatures are maintained, resulting in lowered humidities, improved efficiency and better working conditions.

Masking tape is extensively used in some paint shops and modern finishing rooms to mask out certain areas when spraying final color coats.

Flame-Cleaning New Steel

IN MANY respects, the most important coat of paint on a steel surface is the priming or shop coat. It must protect the metal from corrosion in the period between fabrication and erection. In addition, after the steel is erected, it becomes the foundation for the finishing and future repaint coats. As such, it must provide a firm and permanent paint-metal bond.

In view of its importance, paint makers and steel makers have devoted considerable time and study to methods of treating the surface of new steel so that the shop coat will secure the tightest possible hold. One such method of recent development is the so-called flame-cleaning and dehydrating process. This procedure, which involves the application of a hot flame to the surface followed immediately by a wire-brushing and painting, appears to have considerable promise.

In common with other methods of treating new steel, an important purpose of the flame-cleaning process is the removal of loose and semi-tenacious mill scale. Unlike many other methods, however, it has the further purpose of dehydrating the surface, that is, driving off occluded moisture from beneath the more tightly adherent scale and from the surface. Finally, as a result of the heat application, the surface of the steel is left in a warm condition which many experts believe is conducive to a more lasting paint job.

The flame-cleaning process was developed as a result of a series of tests in an eastern steel fabri-

Here it is—

THRESHER-LAC SUPREME

A Clear Spraying Lacquer

FOR FINE FURNITURE

Resists—
Alcohol : Marring
Water : Steam

Provides—
Tough : Printproof
Hard : Durable

Better Try It. ***—Film***

THRESHER'S High Standard Varnishes MADE GOOD SINCE 1859

THE THRESHER VARNISH COMPANY
DAYTON, OHIO

PAINT—VARNISH—ENAMEL—LACQUER

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DO NOT WRITE OR REQUEST SAMPLES UNLESS

you are interested in decreasing your costs—improving your finish. ARE YOU? —then write today specifying color of sample desired. We will then furnish sample and information on our new

SUNBRITE BRONZE PASTES*
(All Colors)

No more dry powder to handle—no more sandpaper finishes in dark shades — no more mixing and blending of pigmented vehicles and powders—no more wasting time trying to duplicate prior color matches. Less material per unit.

We reserve the right to submit samples and information to only a limited number of concerns in each industry.

The Mitchell-Mayer Co.
St. Louis, Mo.
*Patent Applied For

GKS Ovens

GEORGE KOCH SONS

maintains an engineering staff that is available for consultation service at all times. They will be glad to make suggested designs and layouts of your industrial ovens and complete finishing systems. This is another of the many GKS services that are available without cost or obligation to you. WRITE TODAY.

GEORGE KOCH SONS, INC
EVANSVILLE, INDIANA
MANUFACTURERS OF INDUSTRIAL OVENS AND COMPLETE FINISHING SYSTEMS

cation shop on surface-conditioned structural shapes and plates. In these tests, it was found that plates vigorously wire-brushed to remove loose scale, cleaned of surface impurities, heated to about 212°F., and then painted while still warm, provided a better paint base than plates surface-conditioned in other ways. With the adaptation of regular de-scaling apparatus, a standard procedure was worked out as follows:

First, the steel is cleaned thoroughly of oil, grease and other foreign substances with rags soaked in mineral spirits, benzene or gasoline.

Cleaning is followed by the application of the high-temperature oxyacetylene flame. For flat surfaces, the apparatus used provides a row of small brush-like flames which are guided across the surface at a forward speed of 10 to 20-ft. per minute, at a flame angle of 45°. For rivet heads, corners and other inaccessible places, apparatus providing a circular group of flames, is used.

As the flames progress along the surface, a varying amount of mill scale is loosened and flakes off. A portion of this scale is removed as a result of the differing expansion coefficients of the scale and the steel. Still other portions are released as a result of the conversion to steam of occluded moisture in and under the scale with the resulting explosion blowing the scale clear.

Immediately after the flame application, the surfaces are wire-brushed vigorously to remove all loose particles and dust. Paint application follows as soon as is practicable after hand-cleaning.

An aluminum—glorified by TOUSEY

No. 1 CHROMELUME

A Ready Mixed Aluminum Which Combines the Following Qualities:

1 — Extreme brilliance.
2 — Fifteen minute air dry.
3 — Will not rub off after ageing.
4 — Covers 2,000 square feet per gallon.
5 — Will not settle or pack in tank or container.
6 — Can be dipped, sprayed or flow coated.
7 — Retains its brilliance indefinitely inside.

We believe no other similar type of finish has the above seven qualities in one material. There are other Chromelumes for such purposes as outside durability, water immersion, heat resistance, etc. A full description of any of these materials will be sent on request. Address your inquiries to the . . . .

TOUSEY VARNISH COMPANY

520 WEST 25th STREET **CHICAGO, ILLINOIS**

Varnishes — Enamels — Lacquers — Synthetics : Since 1885

The interval between flame application and painting should not exceed two hours. Within this period, the steel will have cooled sufficiently for the application of paint, but its temperature will be well above atmospheric temperature, thus preventing recondensation of moisture on the surface.

In addition to its effectiveness in preparing steel for paint, makers of flame-cleaning apparatus claim several practical advantages for the procedure. One is its simplicity. The necessary equipment can be operated by ordinary workmen and painters. Another is its adaptability. The apparatus is portable and flexible and the de-scaling flame may be applied either in the shop adjacent to plant machinery or in the field.—DUTCH BOY QUARTERLY.

Wood Sealers

ONE HEARS a lot about the "solids content" of wood sealers these days. This really does not mean much, as some high-solids sealers have a tendency to penetrate into the wood and more or less disappear, whereas others of lower-solids content remain on the surface and actually hold out the succeeding coats better than the high-solids material. The best way to judge a sealer is by the film it presents for sanding and the final "fullness" of the finished job.—M. T. Penn.

Copper-coating clean steel without current—simply dipping the work into a coating solution—is described in a new bulletin. For free information write the American Chemical Paint Co., Ambler, Penn.

Clean Finishing; How to Get It

QUITE frequently high-grade sprayed finishing is made difficult because of dirt. Any number of factors enter into the cause of it.

Tight enclosures (partitioned rooms) around spray booths create high-velocity dirt-carrying air movements toward the booths. Such enclosures should be provided with filtered openings of sufficient area to supply adequate air to offset that exhausted from the booths.

Supplying the spray room with filtered air under pressure is often done at considerable expense and sometimes with disappointing results.

Except where spray finishing is not being done on a relatively large scale, the spray booths need not be enclosed in a separately partitioned room, provided they are located so as to permit free movement of low-velocity air from all directions. Reasonable care should be exercised to see that no dusty or dirty operations are located is the immediate vicinity, and that the general area is kept clean. Frequently, oiled cheesecloth partitions may be installed to correct a particularly stubborn condition.

Dust-free air in the spray room is only one of the factors entering into the elimination of dirty work.

Clean finishing is a matter of good housekeeping. Constant care with the numerous little things involved is of great importance.

The product itself must be free of dirt before it enters the spray room. The medium by which the product is carried into the spray room and booths must be clean. The spray room and booths must be clean.

The sprayers' clothes should be periodically cleaned and freed of lint. Spray guns and hose must be clean inside and out. Finishing material and reducer should be well strained. Filters or strainers must be used in the air lines.

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Black Baking Japans, Baking Enamels, Synthetic Enamels, Varnishes, Tire Paint, Aluminum Paint, etc.
Dependable Products Since 1878
THE AKRON PAINT & VARNISH CO., AKRON, OHIO

No traffic should be allowed through the spray room. Idlers and visitors should be kept out.

Blowing off the work with compressed air and tack-ragging should not be done close to wet sprayed products.

Sanding, puttying and similar operations should be done outside of the spray room.—H. R. MADSON, Industrial Consultant.

Fluorescent Lighting

FLUORESCENCE is a property of some materials which causes them to give off a light and color different from their own when illuminated. The fluorescence of light produced is usually of different wave lengths than the illumination responsible for it. Violet and ultra-violet rays are the best exciters of fluorescence, and because of this they are the principal agents used to produce it.

Fluorescent lighting is achieved by an evacuated glass tube with a drop of mercury, together with a slight amount of Argon gas sealed within. The inside is coated with a fluorescent mineral salt or chemical, and is provided with positive and negative electrodes at either end. When electric current is turned on, the mercury becomes a vapor, throwing off quantities of ultra-violet that excites the coating. This coating, in turn, transforms the invisible short waves to visible daylight.

Portable Mixer Bulletin

Illustrations, descriptions, specifications and prices of several models of the "Lightnin" line of portable electric laboratory mixers are included in a 2-color, 4-page "Catalog B-67" recently sent out by Mixing Equipment Co., Inc., 1062 Garson Ave., Rochester, New York.

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LACQUER SEALER

That Builds Like Shellac

Interesting from price standpoint

[Send for 5-gallon initial order at drum price.]

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May We Prescribe?

SUPER KAMEX VARNISH

Unique new discovery—a fine furniture and cabinet finish that combines the best features of varnish and lacquer without their faults. Has twice the solid content of lacquer and dries as quickly. Can be sanded or polished within an hour. Water proof, alcohol and alkali resistant. Best results with spray but brushes well if thinned with 5% to 10% turpentine. Non-lifting—can be applied to any surface. One coat of SUPER KAMEX equivalent to two of clear patented lacquer. An ideal product for furniture finishing or refinishing. Comes in clear gloss, semi-gloss and flat. FREE - Send today for free bulletin just off the press. Also tell us your specific problem. Unusual products our specialty.

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YOU CAN COUNT ON CAMPBELL

M. S. CAMPBELL Company

"Fine Finish Leadership for 25 Years"

706 EAST 19TH ST. KANSAS CITY, MO.

Stain-Raised Bruises in Cabinet Wood

FOR SOME TIME it has been my conviction that, in many furniture factories, sufficient attention is not being given to the preparation of wood surfaces in the sanding and cabinet departments, before the pieces are delivered to the finishing department.

This applies to all of the cabinet woods and particularly to the finer woods such as mahogany, walnut and oak. And, taking up mahogany first, I believe that one particular phase of the surface condition is often completely overlooked. It is the fact that during processing in the machine department, mahogany, being one of the softer hardwoods, is often easily bruised or marked in such a way as to cause the finisher considerable trouble later.

There are occasions when pieces are passed through a planer and, owing to small particles of wood or glue lying on the bed of the machine, the wood passing through is pressed down tightly on these, and small bruises and indentations are made in the surface of the pieces. Then, if the planer cut or the sanding isn't deep enough to cut below these bruised fibers, they are still in the crushed-down state when they reach the finishing room.

Now Mr. Finisher's trouble begins. If you are familiar with wood fabrication you can visualize what happens when the finisher applies his wet stain. Here is the result: Every one of those little bruises will be raised up above the level of the rest of the piece, because the moisture from the stain reaches down to the crushed fibers and causes them to swell and raise up to a point where they show as small lumps. If they are not removed, they will project above the level of the film of finish and remain as unsightly reminders of a lack of care somewhere back in the plant.

Just a little more to explain the best way to remove these

WE RECOVER YOUR
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Write for specific details to — 70 Pine Street, New York City

stain-raised bruises. Sanding is not entirely satisfactory because, owing to the fibers having been crushed, they will give under the pressure of the sand block—and then come up again. I have found that the most satisfactory way is to cut or pare them off level with a sharp chisel. Then touch up the spots affected. Invariably these cut-down spots will respond satisfactorily to the regular finish.—Sep. Booth (Foreman Finisher).

Foreign Sales Rise for Interchemical Products

Foreign sales of protective and decorative coatings, such as printing inks, lacquers and varnishes, are showing a definite upward trend, according to officials of Interchemical Corporation, New York, N. Y.

Increases in the foreign sale of Aridye textile colors, made by Interchemical's Aridye Corporation, are also reported. German dye and color companies, who formerly sold in world markets, are naturally hampered by the Allied blockade.

As a result of improved commercial prospects in South America and in other parts of the world, Interchemical is forming an Export Division to unify and expand foreign sales efforts on the products of its various divisions and associated companies. The new division will be headed by C. A. Richards. Margaret C. Ott is Assistant Director.

Polymerin speed-bake finishes are being sold more widely outside the United States; so are varnishes, enamels, and other products manufactured by the Interchemical subsidiary, Ault and Wiborg Corp. Other materials made by Interchemical companies, which are showing encouraging export possibilities, are color dispersions, pyroxylin-coated cloth, dry colors, pigments and oilcloth.

Since the beginning of the European war, American suppliers have found widening market for their products in countries formerly dependent on belligerent nations for these materials. While trade with the warring countries has not been cut off entirely, in most cases, it has become increasingly difficult to depend on their shipments. Rising shipping rates between neutral states in Europe and South America have opened further opportunities to American exporters.

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Power Graining Machine

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2. Will cover a surface up to 31" x 80".
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EDITORIAL

1940 Autumn Colors

Manufacturers looking for new color suggestions or wanting to know what colors will be popular this fall may be interested in the Textile Color Card Association's news release on Fall Woolen Colors. Excerpts from this follow:

These subtle colors are described as deep muted pastels and middle tones. In this varied color panorama of the American countryside are Pastoral Pink, Mesa Green, Prairie Rose, River Blue, Plantation Tan, Rocky Blue, Vista Blue, Desert Mauve, Valley Green, Meadow Gold, Sunset Blue and Rancho Red.

Further glorifying the American scene in the field of sports are gay, exciting Stadium Colors, which are expected to have strong merchandising appeal for the football season. These comprise Grid Blue, Scoregold, Relay Red, Track Green, Pigskin Tan, Sprinter Blue, Campus Rose, Quad Green, Stadium Violet, All-American Blue, Kick-off Red and Fieldgreen.

New developments are noteworthy in the range of basic colors, which are presented in groups of two blending shades called Twintones. Greens, for example, are introduced in subtle high style versions as Bayleaf, a reseda type, and the deeper harmonizing Promenade Green. Lava Green and Khaki Green are murky yellowish tones. Bluer in cast are Mexican Jade and the darker Vernon Green. Brown, which is slated for increased acceptance this fall, is interpreted in the deep Chicory Brown, reminiscent of French coffee. In a lighter register is the neutral Santan. The spirited Brown Mustard and the lighter blending Tobacco Gold add decided zest to this autumn color range.

Blues give promise of wider favor than usual for fall, particularly in the smart greyed tones of the cadet and soldier blue varieties. Completing the blue family are the deep Colonial Navy and the brighter patriotic version, Loyal Blue. Lively cardinal and stimulating red wine shades are expressed in Winterberry and Vino Red. Crushed Cherry and the rich deep Vineyard Red in-

cline to the purplish cast, Plumwine and Mist Violet introduce a new high style theme. In the gamme of greys are a medium tone called Pottery Grey and a darker military type, Cruiser Grey. New versions of rust are presented in Dixie Clay and Indian Earth.

Startled the Public With Daring Designs in Furniture

Los Angeles' semi-annual Modes for the Home Week opened April 3 in true Hollywood style, with searchlights criss-crossing the sky, trumpeters and a grand unveiling of the windows dedicated to home furnishings in the down town area—150 in all.

Windows, displays and model rooms throughout the stores were predominantly eye-catching Victorian, with Regency and fine-line modern runners up. Because this event is based on good showmanship, volume-selling staples such as 18th Century and commercial modern were played down. All the model rooms and houses throughout the downtown stores were refurnished for the occasion with furniture and decoration ideas that were news, calculated to startle the public out of its usual lethargy when it comes to furniture.

Barker Bros. showed daring and unconventional decoration, particularly in their California house which set the whole town talking. Bullock's Inc. featured an American Victorian and a Regency, and contrasted them to interiors of the 20's and even early 30's. Posters on the "Changing Scene" talked of styles in furniture and clothes, best sellers and famous events of those years and then switched to present times with, "If you started home making then, isn't it time to refurnish now?" Their examples were not so horrible as to be caricatures; they were of recent enough vintage so that there were plenty of guilty looks on the faces pressed to the windows.

Eastern Columbia inaugurated their Anne Adams service and their complete styling-up with one of the best windows in town. The May Co. plumped boldly for fine-line modern, decorating an entire house as well as many model rooms with excellent examples. The Broadway's windows were noted for their use of mannequins dressed to fit the scene; and the Fifth Street Store features well decorated budget rooms at a uniform price.

Vaporized Solvents Can Be Recovered for Re-Use

American industries use tremendous quantities of low-boiling organic liquids—generally spoken of as "solvents"—in carrying out various manufacturing operations. In many cases, these solvents act merely as a dissolving or carrying medium for materials such as nitrocellulose, cellulose acetate, synthetic resins, and are vaporized into the air during various manufacturing processes.

If manufacturing is to be carried out most economically, efficient recovery of these vaporized solvents for re-use is essential. Efficient recovery makes it possible to eliminate solvent cost as a first consideration. Therefore, a cheap solvent need not be used if a higher priced solvent will improve the quality of the manufactured product.

Furthermore, an efficient recov-

ery system not only prevents the waste of valuable solvent vapors but usually speeds up the manufacturing operation and decreases fire and health hazards.

The development of a modern system of solvent recovery has made it possible to efficiently, profitably and safely recover practically any quantity of solvent vaporized under conditions which permit the vapor-laden air to be collected from the manufacturing operation, even though the vapor concentration is extremely low and water vapor is present. The solvents are recovered from the air for re-use at a small fraction of the cost of new solvent.

Gas Heat Answers Infra-Red Ray

At the American Gas Association conference on industrial gas sales, held in Toledo, Ohio, March 28 and 29, one of the feature events was a clinic on near-infra-red ray heating — which constituted the gas industry's first responsible answer to the much-publicized electric infra-red ray heating lamp using gold-plated reflectors.

What technical men in the gas industry had to say about infra-red ray (electric) heat, in comparison to gas for production bake finishing operations, is quite interesting. Part of the general write-up on the conference, which will appear in the American Gas Association's magazine, consists of a section entitled "Infra-red Heating Clinic Clears the Air on Competitive Threat (?)".

The talk of Mr. Hale A. Clark of the Michigan Consolidated Gas Co., Detroit, Mich., (one of the three speakers on the infra-red ray heating clinic) was entitled "Drying with Infra-red Radiation." Mimeographed copies of the notes from which Mr. Clark talked (six pages of single-spaced typing) are available to those who write to Mr. Harry W. Smith, Jr., Director of Industrial Publicity, American Gas Association, 420 Lexington Ave., New York.

Bleached Wood Effects— Genuine and Imitation

★ I have thought it worth while, from recent observation, to call attention to many attempts at producing bleached wood effects by the use of methods other than straight wood bleaching and finishing with transparent top coats of varnish or lacquer.

There are a number of jobs, evidently done with pigmented varnishes or lacquers, which on distant view have an appearance of bleached wood finish, but in many cases ordinary wear, scratching or abrasion removes these shell-like coatings. The appearance is then not only spoiled, but it is made very difficult to refinish these areas on interior woodwork, furniture, etc., and obtain a complete match with the original.

I have seen some jobs where this method was even tried on refinishing previously stained

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★ Guest Editorial .... Many readers can write an excellent editorial — two or three paragraphs presenting a timely suggestion or valuable idea that will stimulate thought on a live subject. The Editor welcomes guest editorials and pays for those that are published.

woods. Bleeding occurred, occasioned by the solvents in the glaze or pigmented lacquers which were used to give the faked bleached look. I believe it is important to have the wood actually bleached so as to show the grain figures through synthetic varnish or ordinary varnishes or lacquers. Certainly the wearing qualities are better because an abrasion or scratch does not disclose anything more than bare thoroughly bleached wood. These areas can be retouched wherever the wearing occurs.

I am sure there is no slackening in the growth of demand for actual properly-bleached wood finishes in store fixtures, interior trim and furniture styling, but a black eye is sometimes given the whole idea when a cheaper method is employed.—L. R. V.

How One Foreman Manages Difficult Workmen

* Peace and harmony in the finishing department is as big a factor in obtaining good results as is the use of correct materials. All men cannot be handled alike. There is as much difference in men as there is in materials. A competent finishing foreman would no more think of handling all of his men the same way, than he would of applying all of his finishing materials in just one way.

It isn't a good policy to get rid of a worker because he has a mental or physical make-up that requires special handling to control. No race horse man would dispose of a speedy horse because the beast was hard to manage or difficult to handle. The easy going horse that comes in last is not desirable.

Workmen should be classified according to their temperament and handled accordingly. They should be placed at work to which they are best adapted. To illustrate: Here is a workman of high-strung temperament. He is quick in action; moves fast and accurately; can do a day's work above the average and can be pushed to the limit when occasion demands. But he is prone, at times, to "fly off the handle;" talks back to the boss in a way that he shouldn't; gets angry and makes things unpleasant, etc. He's a valuable workman but a frequent disturber. However, he is the very kind of a worker to throw into the breech when such an occasion arises, and he will function 100% nearly every time.

D. C. STRIPPER

A Paint Stripper and Metal Cleaner

Quickly and economically strips off coatings of baked enamel, paints, lacquers, etc., from metal surfaces and cleans all types of grease and oil from metal surfaces preparatory to finishing. We also manufacture specialty alkali cleaners for conveyor washing machines and steam cleaning equipment.

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True Bleaching of Wood infallibly obtained only by using....

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L. R. van ALLEN COMPANY

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There is a way to handle such workmen. All that is necessary is for the foreman to study that man and find out how. It may mean that you have to appeal to his vanity in order to handle him. All right, do it. It's to the foreman's credit to handle such a man; it would be to his loss to discharge the workman.

In my work room there are all kinds of personalities—the boastful worker, the quiet worker, the practical joker and the plodder. Some of these men have to be bossed; others must be lead. With still others, I have to be careful of the language I use when directing them. And some can only understand harsh words. The thing to do is to find out the kind of handling each man requires and then handle him that way.

Some foremen may say, "I'm boss here! What do I care what kind of men my workmen are. They will do as I say, or else."

You are wrong, Mr. Foreman, in such a statement. Forget that you are the boss. Remember that your men look up to you and you can "keep them in line" by tactful handling. It's better that you have their respect than that you make them feel your power.

Once I had a workman who was a grumbler. He grumbled about every task that was given him; always had something to say about getting the worst jobs in the department. Other workmen were treated better than he was, according to the way he saw things. It seemed hopeless to cure the fellow of his bad habit. Talking to him quietly about it did no good; neither did a repremand accomplish anything. Nothing seemed to faze him. He grumbled right along. But he was a good workman and it was well worth trying to cure him.

A little study did the trick. When he grumbled about the task given him one day, I jumped in and did the work myself; made him stand by and watch me do it. It shamed him and he never grumbled after that.

So, Mr. Finishing Foreman, whatever way is best to handle your workmen, do it that way and watch the quality and quantity of your work improve.—W.

Ken-Wood Bleaches
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New Finishes
New Bulletin on Wood Bleaches
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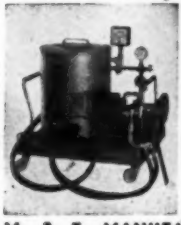

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It's Here!
the new "Protecto Ray"
a totally enclosed unit employing 10¼" 24 karat gold-plated reflector, recommended for use in locations where dust, paint fumes, oil, etc., are likely to collect
ENGINEERED INSTALLATIONS FULLY GUARANTEED.
INFRA-RED-RAY DEVICES, INC.—The First to Sell Such Equipment
9325 E. Forest Avenue DETROIT, MICHIGAN

Measure Men's Value by Ability Rather Than by Their Age

* There certainly should be no discrimination against a man working or seeking employment because of his age. During the last 10 years industry has talked, practiced, discussed and made entirely too much fuss over this natural problem, which we always have had and always will be confronted with.

In some cases management is entirely to blame. While making various surveys I have found a policy set up regarding the age limit. Generally it is set at age 40. Most executives don't seem to have any concrete or reasonable reply as to why 40 or 45 was selected, except that "a man at this age is old." This, as most anyone knows, isn't so in all cases; some are old at 30. Strangly, those who make these policies and decisions are all men over 40 years of age. They are usually aggressive, young in action, quick to think and act, and they think highly of their own personal ability.

In factories where skilled craftsmen are required this setting of the maximum age limit at 40 or 45 is a very costly policy. It is a known fact that in Detroit, Mich., most of the skilled craftsmen are over 40. Go into any automobile factory and note the predominance of "old men." I have found this true in Connecticut, especially with the tool and die makers and machinists; also with lens grinders in Rochester, N. Y., and other specific cases in other localities.

Why then should an executive set a policy of discrimination against men above 40 or 45 years of age, especially if his company employs skilled craftsmen? When age has perfected skill and ability, then age is a valuable asset. This, in combination with the man's willingness to work and your ability to retain his interest and loyalty, makes him the ideal employe, even when he has reached 50 or more. What a waste of qualified man power this would lead to if all employers thought that men of 40 or 45 were too old to be employed.—C. W. HARDY.

MARTIN'S
PRODUCTION PROVEN
—FINISHES—
Finishing systems scientifically developed to meet your specific conditions will (1) Cut finishing cost per unit (2) Save time by reducing the number of finishing operations.
MARTIN VARNISH CO.
900 W. 49TH PLACE, CHICAGO, ILL.

Three and a half million automobile wheels have been striped at a cost of 1/14th of a cent per wheel for striping equipment investment. Similar results can be obtained on other products requiring striping for trim or decorative effects, if such articles are being produced in large quantities. For further information write K. H. Gettner Shop, 4210 Grand River Ave., Detroit, Mich.—Adv.

Plan Your Work Ahead, Young Finisher Says

* I received your last letter and it certainly is mighty nice of you to write me. I'm stepping up my rate of speed in my work and last night the foreman was pleased with the work I turned out, but it is not what I call high-class work.

You know I spent a year and a half at sea on the North Atlantic run—and working in the engine room of a ship is one place where everything must be done right with a maximum efficiency and in the minimum of time. I've worked under all different types of men and with all sorts of men, and I know this much: *The smartest man is the one who has an education and experience as well.*

I have in mind two officers in particular. One was born to the sea and the other went to sea later in life. One was educated in every marine school in the country; the other was not, but he knew enough to have a license. One planned his work; the other did not. The man with the education who "laid his work out," accomplished 1000% more than did the man who was not educated.

The point is this: It seems to me that a great many companies leave the main part of their finishing problems in the hands of a busy foreman, whereas the order, as soon as it comes in, should go into the hands of a man trained in the work, checked up for supplies and laid out, and then go through the line of production.

Your I. F. reference editorial (April issue, page 75) is good, too, but why should a concern stop there? The trained technician, besides the foreman, should be the man to look over all of the articles and also build up a small lab. with a small library, and keep track of new developments, etc.

I hope I'm not taking too much of your time, but this will show you how I work.

I just finished going over your latest issue. Next I'll examine it very carefully and then file the articles therein for future reference. I file each article under its own heading; such as, testing, purchasing, etc.—B. P. W.

GALVAPREP

treats and prepares various zinc and galvanized surfaces so that an enduring adhesion is provided for paints or finish coatings. This adhesion is obtained by chemical reaction of the solution on the zinc surfaces. The etching action of GALVAPREP insures an ideal toothed base to which both the coating and paint will bond firmly.

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6564 Benson St. Detroit, Mich.

Australian Representatives:
Hardie Trading Pty., Ltd., Melbourne

Letters from I. F. Readers

(Continued from page 10)

by the Reinhold Publishing Corp., New York, N. Y.

Most of the manufacturers of finishing materials, whom you see advertising in INDUSTRIAL FINISHING magazine, manufacture and have for sale synthetic coatings of various types and for various purposes.—ED.

Hot Lacquers

Referring to an article entitled "Experience with Hot Lacquers", page, 16, April issue of INDUSTRIAL FINISHING, kindly inform us the names and addresses of makers of suitable hot lacquers which are most durable for finishing hand made furniture of the finest type in expensive construction.—D. S. Co. (Individuality in Good Furniture).

Names of concerns who have advertised Hot Lacquers in INDUSTRIAL FINISHING have been included in our letter of reply.—ED.

Rayon Address

Will you please be kind enough to give us the exact address, if possible, of the Rayon Processing Co., of Connecticut. — I. A. Co. (Paint & Lacquer).

The only company we know of by this name is an INDUSTRIAL FINISHING advertiser located at 861 Tremont St., Central Falls, Rhode Island.—ED.

Coating for Plastic

For small castings of a cold-molded synthetic resin, which is white (ivory) and can not be dyed, I need a tough, well-sticking and very brilliant coating. I have observed at the inner door handles of the Ford-de-Luxe 1939 a similar very hard and brilliant coating (the handle is of metal). My pieces are buttons, buckles and similar articles. Could you advise me what coating I may employ and who in the States is making it?—D. P., Mexico, D. F.

Finish Testing

We would appreciate receiving promptly a reprint or tear sheets of the article on "How to Test Clear Finishes," by P. H. Faucett, appearing in January 1937 issue of INDUSTRIAL FINISHING magazine, pages 28, 30, 32, 66, 68, 70 and 72.—C. Co. (Billiard Tables).

Classified Advertising

Rate: 45 cents per line per insertion—minimum $1.35

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POSITION WANTED.

Foreman Finisher, age 42, with 22 years' experience in all phases of wood finishing, now employed, wishes to make a change. Can furnish excellent references. Address IF-796, care Industrial Finishing.

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Have had 18 years' experience selling industrial finishing materials to the wood and metal trade, and have an established following among volume accounts in Indiana and Ohio. Address IF-797, care Industrial Finishing.

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To handle IDEAL TACK RAGS. Remove specks, lint, sand particles, finger marks, etc., for a perfect finish on metal or wood products. Exclusive territory. IDEAL CHEMICAL CO., 12347 Forest Grove ave., Cleveland, O.

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Courses by mail; class in Phila. Paint resin and chemical analysis. INDUSTRIAL CONSULTANTS, P. O. Box 7515, Phila., Pa.

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Experienced Oven Salesman capable of heading up or taking charge of complete sales of a synthetic oven department. Nationally-known concern. Own men know of this ad. Replies confidential. Address IF-795, care Industrial Finishing.

WANTED

For Chicago, used modern gas conveyor oven about 40 to 50 feet long. Must be bargain. State price, age, original cost and specifications. Address IF-794, Industrial Finishing.

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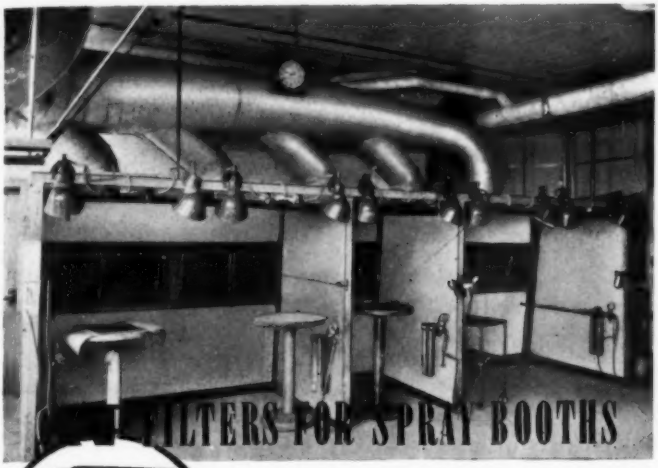
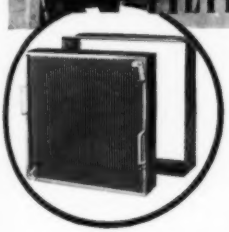
We will appreciate receiving Industrial Finishing regularly every month as we have a variety of finishing jobs and are interested in new developments in this line.—J. R. S., (Chief Engineer of C. Mfg. Co. (Subsidiary of United States Steel Corp.)

I am a steady reader of your very good magazine Industrial Finishing, and I consider it the best publication dealing with finishing methods, materials, equipment, etc., on the market.—S. B., (Foreman Finisher).



FILTERS FOR SPRAY BOOTHS



The American Sinuous Spray Booth Filters successfully eliminate serious maintenance problems by removing spray vapor from the exhaust air before it reaches the fan and ducts. Prevent reduced fan efficiency due to accumulation on fan blades; reduce fire hazard resulting from deposits in exhaust dust; and eliminate unsightly appearance caused by settling of spray vapor on outside walls. *Write for Bulletin No. 244.*

AAF FILTERS FOR FINISH DRYING

The Multi-Panel Automatic Filter (right) is recommended for larger drying room ventilation while in small drying rooms Airmat Dry Filters (left) are more practical. The use of proper ventilation in the drying room, bringing filtered warm air into contact with the finished surfaces and exhausting the fume laden air, accelerates drying. *Write for Bulletins No. 230B and 240C.*

AMERICAN AIR FILTER CO., INC.
707 Central Avenue
Louisville, Ky.

AIR FILTRATION AAF DUST CONTROL

ZAPONOL

has

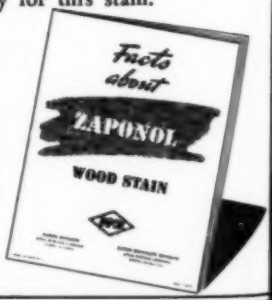
Controlled Penetration

A RADICAL NEW CONCEPT IN WOOD STAINING

Through controlled penetration, remarkable property of Zaponol, Zapon's new wood stain, all surface fibers are uniformly stained through and through, but excessive penetration of the wood is prevented. This is because Zaponol "sizes as it stains". This unique sealing effect is due to a resin base, newly developed by Zapon, and made exclusively for this stain.

In addition to better, more uniform results, Zaponol speeds production, eliminates tear outs, and dispenses with a wash coat for most work.

"Facts about Zaponol Wood Stain" is a substantial booklet of knowledge about this new material. Well worth the trouble of sending for it. Contains actual wood panels.



Zaponol—Trade Mark

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